Thumbs+CD

Introduction
Getting Started
Toolbar
Menus
View Window
File Types
Glossary
Hints and Tips
Restrictions
Thanks to...

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File	Edit	Tree	Thumbnail	Options	Window	Help

View	Enter
Edit...	Shift+Enter
Information...	F6
Batch Convert/Edit..	Shift+F8
Copy...	F5
Move...	Shift+F5
Rename...	Ctrl+Shift+F5
Delete...	Del
Create Directory...	Ctrl+F5
Label Disk...	Ctrl+L
Install Fonts	Shift+F6
Remove Fonts	Ctrl+F6
Wallpaper (Center)	F7
Wallpaper (Tile)	Shift+F7
Slide Show	F8
Print...	F9
Page Setup...	Ctrl+F9
Printer Setup...	Ctrl+F8
Print Catalog...	Shift+F9
Catalog Setup...	Ctrl+Shift+F9
Exit	Alt+F4

Click on any selection above.

Help	
<u>C</u>ontents	F1
<u>M</u>enus	
Search for <u>H</u>elp on...	Ctrl+F1
<u>A</u>bout ThumbsUp!...	
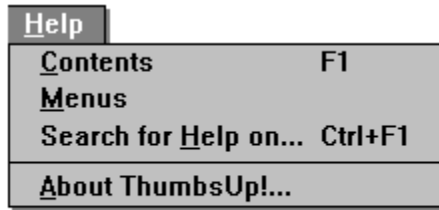
This menu provides access to the ThumbsCD Help system and the About box.

Introduction

ThumbsCD is a graphic file previewer, locator and organizer which simplifies the process of finding and maintaining graphics and clip-art files. It displays a small image (Thumbnail) of each file. You can use ThumbsCD to browse, view, crop, launch editors, and copy images to the clipboard. You can use drag-and-drop to copy files to directories on your hard disk. ThumbsCD will also create a slide show from selected graphics, and install files as Windows wallpaper. You can print individual graphics files, or the thumbnails themselves as a catalog. ThumbsCD can also convert any image that it displays to several formats. ThumbsCD will also convert metafile graphics to bitmaps.

ThumbsCD currently handles the following types of files (more to be added with each release):

.BMF	Corel Gallery files (preview image only)
.BMP	Windows Bitmap files (also recognizes .DIB and .RLE extensions)
.CDR	CorelDraw V3/4 files (preview image only)
.CGM	Computer Graphics Metafile (binary encoding)
.EPS	Encapsulated Postscript files (preview image only)
.GEM	GEM Metafiles
.GIF	CompuServe Graphics Interchange Format files
.ICO	Windows Icon files
.IFF/LBM	Amiga IFF format
.IMG	GEM Image format
.JPG	JPEG compressed files (in JFIF format)
.MND	Mandelbrot for Windows image files (also handles .MNI)
.PCD	Kodak PhotoCD files
.PCX	ZSoft Picture files
.RAW	Raw grayscale
.RAS	Sun Raster format (also .SUN)
.TGA	Targa Truevision™ files (also .WIN)
.TTF	TrueType fonts
.TIF	Tagged Image Format files
.WMF	Windows Metafiles and Placeable Metafiles

Directory Color Codes

If the option to <u>Indicate Thumbnails</u> is on from the <u>Tree</u> menu, each directory folder is colored to indicate the presence of thumbnails on the path.

There are no files in this directory with thumbnails, and no sub-directories have thumbnailed files either.

This directory contains no thumbnails, but one or more sub-directories do.

This directory contains thumbnails, but has no sub-directories with thumbnails.

This directory contains thumbnails, and has sub-directories with thumbnails.
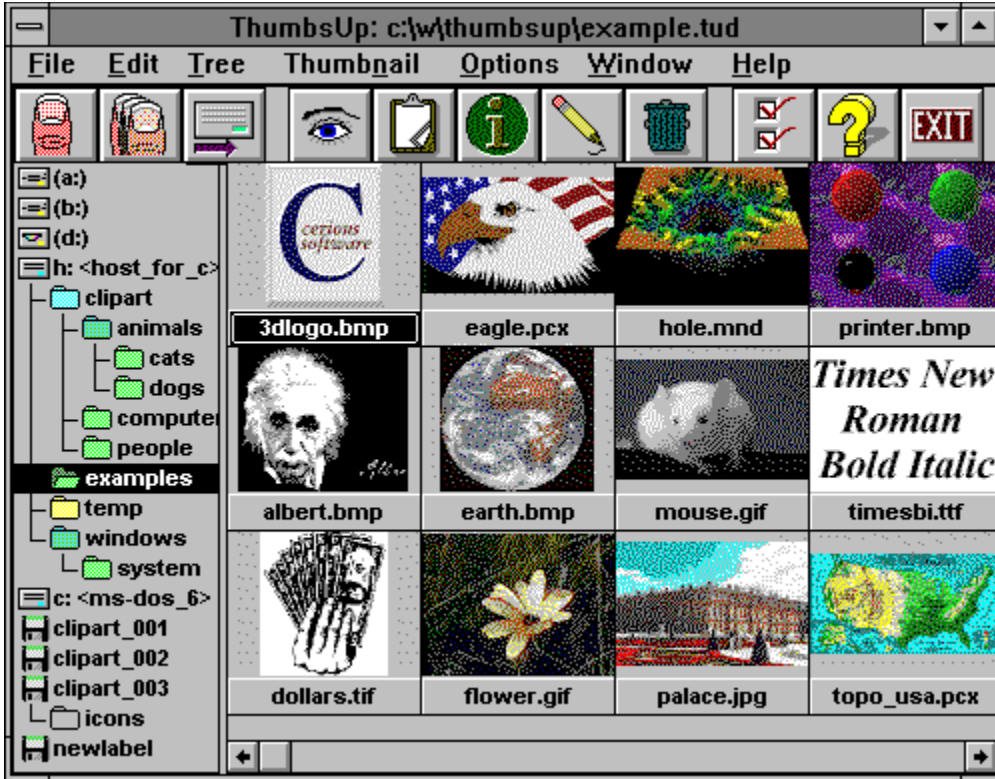
This off-line directory has thumbnails.

This off-line directory has sub-directories with thumbnails, but none of its own.

This off-line directory has both thumbnails and sub-directories with thumbnails.

Main Window

The main window consists of the normal Windows interface (title bar, menus, etc.) and three functional areas, as shown below:

👆 *Click on the picture above (anywhere the cursor becomes a hand) to find out about the various parts of the display.*

Additional information:

The toolbar provides short-cuts to several frequently-used commands.

The **directory list** displays disks and directories from which you may select a directory to display. Unless disabled from the Tree menu, directories are color-coded to indicate the presence of thumbnailed images:

Selecting a directory works much like the Windows File Manager; most operations and menu short-cuts work similarly, and you can drag-and-drop selected files to move or copy them to different directories and drives.

When you select a directory from the **directory list**, file names (and thumbnails, if generated), display in the file list.

You may select one or more files from the file list, then take action on the selected image(s) from the toolbar or menus.

You may also drag the selected files to a new directory or disk.

Selected File

The captions (file names) of selected files are highlighted. Some <u>toolbar</u> and <u>menu</u> options will be grayed if no files are selected.

Scrollbar

A scrollbar allows you to select the part of a list of items you want to display, when all of the items will not display in the area. For vertical scroll bars, click on the left and right arrows to move a column at a time; for horizontal scroll bars, click on the up and down arrows to move a line at a time.

You can drag the box to move proportionally within the scrolled data; you can click on either side of the box to move a full window of information at a time.

Selected Directory

The currently selected directory in the directory list is highlighted. This is the directory that contains the files in the <u>file list</u>.

Disk and Volume Icons

All disk drive in your system and all removable disks (floppies and CDROMs) that you have scanned for thumbnails are represented by small <u>icons</u> in the directory list.

Removable diskette, such as 3.5" and 5.25" floppies.

A local, fixed hard drive.

A network (remotely mounted) drive.

A <u>CDROM</u> drive.

A memory (RAM) disk, used only for temporary storage.

An offline volume which has been scanned for thumbnails. You can view the thumbnails for these volumes without having to insert them in a drive.

Disk Labels

Every disk or diskette used in DOS and Windows can have a volume label. If you want to keep track of files on multiple disks, it will be much less confusing (to you and to ThumbsCD) if each disk is labeled uniquely.

Vertical Split Bar

The cursor will change when over this area. You can press the left mouse button and drag the split bar to the desired position, so the directory and <u>file lists</u> are the sizes you want.

Maximize

This button maximizes ThumbsCD (resizes it to fill the screen). You can click this button again to restore ThumbsCD to its previous size.

Minimize

This button minimizes ThumbsCD (reduces it to an icon). You can double-click the icon to restore ThumbsCD.

Title Bar

This caption shows the current program (ThumbsCD in this case), along with the file it has open.

System Menu

Selecting this button brings down the standard Windows system menu, from which you can move, size, restore, minimize, maximize, or close ThumbsCD. You can also bring up the Task List (with the Switch To option) to switch to another application in Windows.

Toolbar

Click on any button below to see a description of its action.

ThumbsCD Menus

Click below on the menu of interest.

File   Edit   Tree   Options   Window   Help

File - View   Enter

Opens a <u>view window</u> for each of the currently selected files, up to the maximum specified in the <u>General Options</u> dialog box. This option will be grayed if no files are selected.

From the <u>General Options</u> dialog box, you can selecting Viewing as the default (double-click) action for files.

File - Edit   Shift+Enter

Edits the first selected file by launching the editor defined for its file type.

From the <u>General Options</u> dialog box, you can selecting Editing as the default (double-click) action for files.

```
┌─────────────────────────────────────────────────────────┐
│              c:\clipart\testing\tif\tiled.tif            │
├─────────────────────────────────────────────────────────┤
│  ┌──────────────┐                                        │
│  │   [eye]      │      Size:  21120          ┌────────┐  │
│  │              │   Modified:  1/29/1994     │  OK    │  │
│  │              │             04:14:20       └────────┘  │
│  │              │                            ┌────────┐  │
│  │              │   (With MacBinary header)  │ Close  │  │
│  └──────────────┘                            └────────┘  │
│                                              ┌────────┐  │
│      Tagged Image Format                     │Details │  │
│                                              └────────┘  │
│                                                          │
│       140 x 114  256-level grayscale                     │
└─────────────────────────────────────────────────────────┘
```
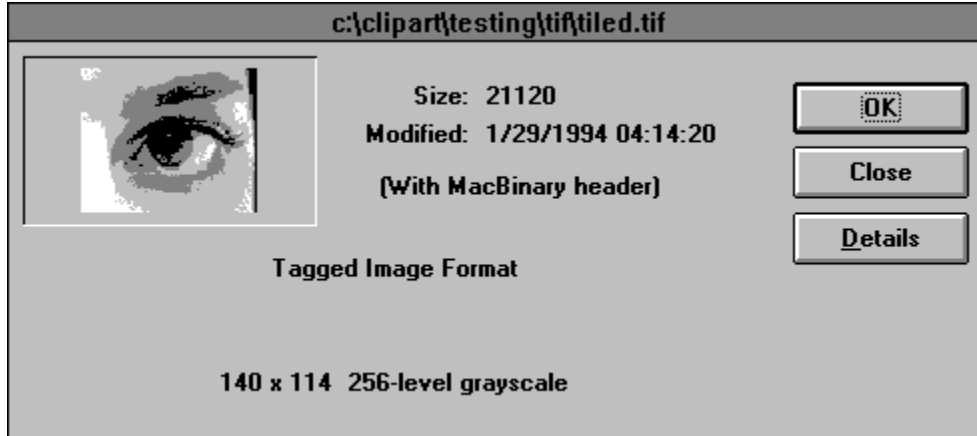
This option displays an information window for each selected file in turn. Press **Next** to continue to the next selected file or **Cancel** to stop.

File - Delete   Delete

Deletes the selected file(s). If confirmation of file deletion is selected from the <u>Confirmations</u> dialog box, you will be prompted whether or not to delete each file.

File - Wallpaper (Center)   F7

This option installs the first selected file in the <u>file list</u> as the Windows <u>wallpaper</u> on the desktop. If the file is not a Windows <u>bitmap</u> file, or if it is not on a local hard drive, it is converted to a bitmap and copied to a temporary file, which is installed.

This option centers the bitmap on the screen, and is recommended for large images.

File - Wallpaper (Tile)   Shift+F7

This option installs the first selected file in the <u>file list</u> as the Windows <u>wallpaper</u> on the desktop. If the file is not a Windows <u>bitmap</u> file, or if it is not on a local hard drive, it is converted to a bitmap and copied to a temporary file, which is installed.

This option tiles the screen with the bitmap, and is recommended for small images.

File - Slide Show   F8

Displays the selected images one at a time, in full-screen mode, with a delay between images. Press any key or the left mouse button to end the slide show. You can configure the slide show by selecting Options - Slide Show.

File - Install Fonts   Shift+F6

This option is available if the first file selected is a TrueType font. It installs any selected fonts that are not already installed, and updates the WIN.INI file so they will be available the next time Windows starts.

File - Remove Fonts   Ctrl+F6

Any selected TrueType fonts that are currently installed will be removed, and removed from the WIN.INI file. Be sure the first selected file is a TrueType font so that this selection will be available.

File - Copy   F5

Prompts for the desired directory to copy the selected files to, and copies them there. Alternately, you can <u>drag</u> the selected files to the intended directory. To force copying (rather than moving, which is the default when dragging files to a directory on the same disk), you can hold down the **CTRL** key while dragging.

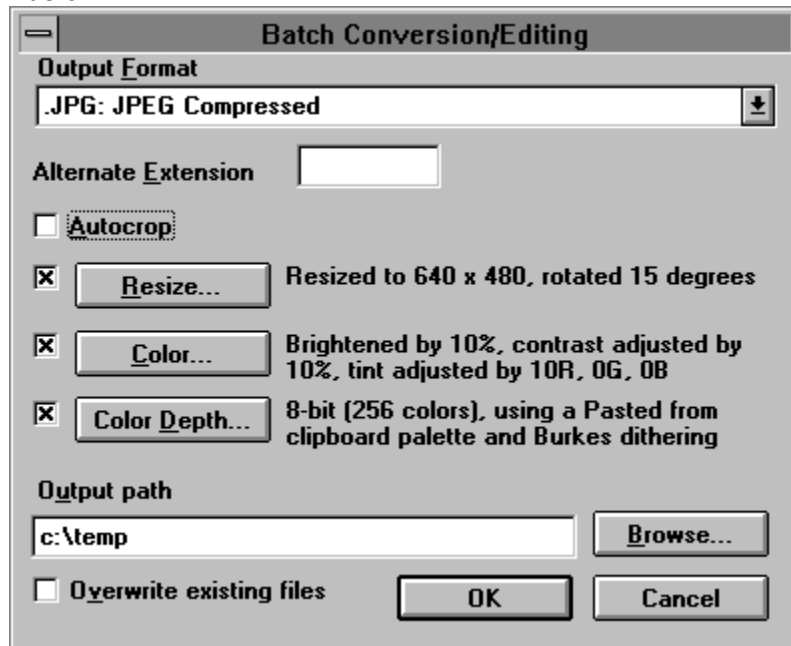## File - Label Disk   Ctrl+L

Use this selection to create a volume label for a diskette. ThumbsCD cannot keep track of which diskette contains which files unless they are labeled.

File - Batch Convert/Edit   Shift+F8

With ThumbsCD, you can convert and edit (in a single pass) many files in the background while you continue to work on other things (even start another copy of ThumbsCD) This option displays a dialog box, which you use to control the batch process. Once you've made the selections and press the OK button, ThumbsCD will prompt you for any options for the specific output format you've chosen, including comment fields and compression options.

You must select the files you wish to process before selecting this option. See Selecting Files for more information on how to select specific files. Each option in the dialog box is discussed below.

```
┌──────────────────────────────────────────────────┐
│ ▬ │           Batch Conversion/Editing            │
├──────────────────────────────────────────────────┤
│ Output Format                                      │
│ ┌────────────────────────────────────────────┬─┐ │
│ │ .JPG: JPEG Compressed                      │▼│ │
│ └────────────────────────────────────────────┴─┘ │
│                                                    │
│ Alternate Extension    ┌──────────────┐           │
│                        │              │           │
│                        └──────────────┘           │
│ ☐ Autocrop                                         │
│                                                    │
│ ☒ ┌───────────────┐  Resized to 640 x 480, rotated 15 degrees │
│   │   Resize...   │                                │
│   └───────────────┘                                │
│ ☒ ┌───────────────┐  Brightened by 10%, contrast adjusted by │
│   │    Color...   │  10%, tint adjusted by 10R, 0G, 0B │
│   └───────────────┘                                │
│ ☒ ┌───────────────┐  8-bit (256 colors), using a Pasted from │
│   │ Color Depth...│  clipboard palette and Burkes dithering │
│   └───────────────┘                                │
│ Output path                                        │
│ ┌──────────────────────────────┐ ┌──────────────┐ │
│ │ c:\temp                      │ │  Browse...   │ │
│ └──────────────────────────────┘ └──────────────┘ │
│ ☐ Overwrite existing files  ┌────────┐ ┌────────┐ │
│                             │   OK   │ │ Cancel │ │
│                             └────────┘ └────────┘ │
└──────────────────────────────────────────────────┘
```

Output Format

Select the output format for the files. ThumbsCD will save each file in this format. If you select a metafile format, such as WMF, then the image editing options will be disabled, and only metafiles (vector graphics) will be processed. ThumbsCD can convert from metafile to bitmap, but not from bitmap to metafile.

Alternate Extension

If you want the output files to have an extension different from the one selected in the Output Format, the enter it here.

Autocrop

Selecting this check box will cause ThumbsCD to automatically crop each image as it is loaded. Note that JPEG images and dithered images are unlikely to autocrop well, as they do not generally contain a border of exactly the same color, even if it appears solid. However, this option works very well for files with large amounts of white, black or solid color border.

Resize

Check this box to enable rotation and/or resizing of each image. If you're converting metafiles to bitmaps, this option also sets the size for the conversion. Click on the button to use the Rotate/Resize dialog box to set the options. ThumbsCD displays a description of the action to

be taken on the right of this button. Generally, if you rotate and resize, you should also select an output Color Depth (below), as many files are promoted to either 24-bit (truecolor) or 8-bit grayscale for proper rotation and resizing.

Color

Check this box to enable color adjustment of each image. Click on the button to use the <u>Color Adjustment</u> dialog box to set the amount of brightness, contrast, <u>gamma</u> and hue adjustment to apply to each image.

Color Depth

Use this selection to specify the output color depth, just as you would for an individual image. The <u>Color Depth</u> dialog box will allow you to specify the number of colors you desire, the palette you want to apply (even one pasted from the clipboard!), and the type of <u>dithering</u>.

Output Path

Specify here the disk and directory you wish to send the converted and edited files to. You can use the **Browse** button to locate a directory you want to use.The files will be named the same as the input, except that the appropriate extension (default, such as BMP, JPG, or TGA, or specifically set in the Alternate Extension) will be used.

Overwrite Existing Files

Check this box if you want ThumbsCD to overwrite files of the same name. If this box is not checked, and ThumbsCD encounters an output file already there, it will skip that input file and display a message in the "Errors Encountered" area in the progress dialog box.

Icon

An icon is a small representation of something. Generally, icons in the Windows environment are not worshiped, though judging by the size of some people's icon libraries, they're at least *admired*.

File - Move   Shift+F5

Prompts for the desired directory to move the selected files to, and moves them there. If the directory is on another disk, this will copy each file, then delete the original. Alternately, you can drag the selected files to the intended directory. To force moving (rather than copying, which is the default when dragging files to a different disk), you can hold down the **SHIFT** key while dragging.

File - Rename   Ctrl+Shift+F5

Prompts for a new file name for each selected file, and renames it accordingly. You cannot move a file to a different directory with this option; use <u>File - Move</u> instead.

File - Create Directory   Ctrl+F5

Prompts for a directory name to create as a sub-directory for the current directory (selected in the **Directory List**).

Note that since it has no thumbnailed files int it, this new directory will not be visible in the directory list unless <u>Tree - List Thumb Dirs Only</u> is **not** checked.

File - Print Catalog   Shift+F9

Prints a catalog of the thumbnails in the database, organized by directory. If you choose to print only the selection, then ThumbsCD will print thumbnails for the selected directory in the Directory List, and all its sub-directories. If you choose to print All, then ThumbsCD will print all thumbnails in the current database.

Note: ThumbsCD does not re-examine the directories on disk during the printing operation, so thumbnails will print for files which were thumbnailed, but deleted from outside of ThumbsCD.

The format of the catalog is extensively customizable by the Catalog Setup dialog box.

File - Catalog Setup   Ctrl+Shift+F9

This dialog box allows you to customize the printing of thumbnail catalogs.
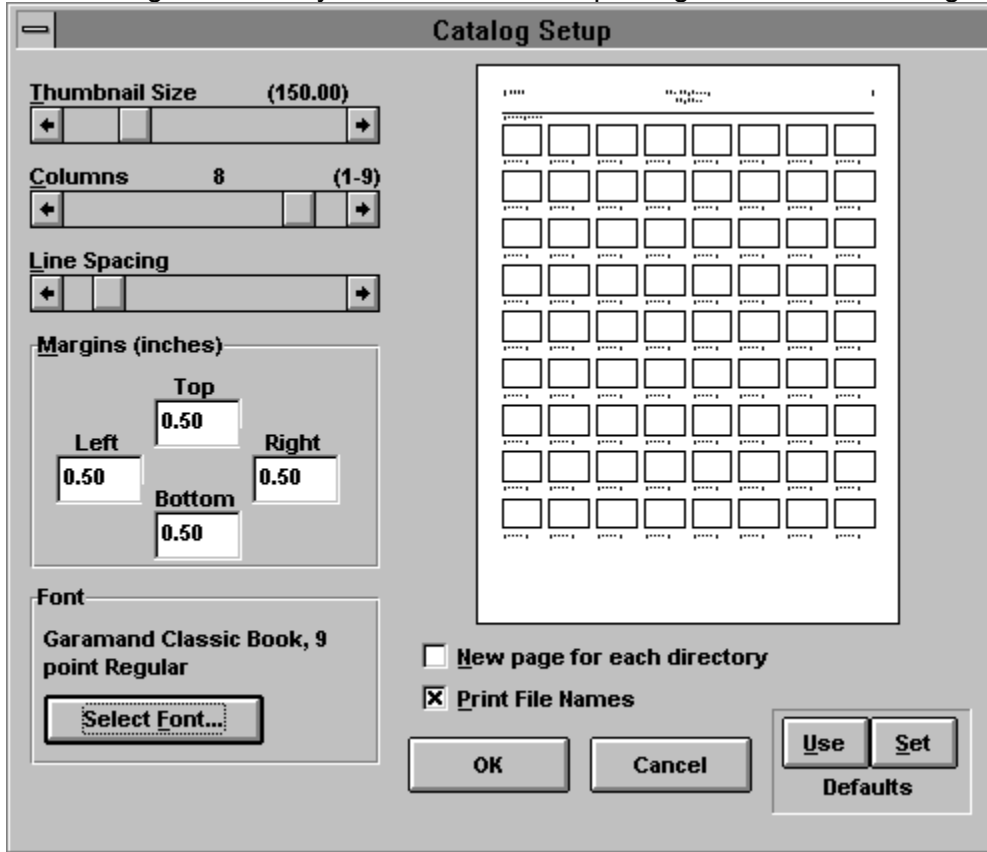
Thumbnail Size

You can vary the printed size of the catalog from 50% to 500% of the size of the thumbnail in the database (96x72 pixels), thus cramming more or fewer thumbnails onto a page. Higher percentages provide more opportunity for monochrome printers to dither, but may look "chunky" because of the stretching of the bitmap.

Columns

You can vary the number of columns to print; however, the maximum number is based on the **Thumbnail Size** and the resolution and page size of your printer.

Line Spacing

Allows you to specify the amount of space between lines of thumbnails in the catalog.

Margins

Allows you to set the top, left, right and bottom margins (in inches).

Font

You can select the font to print the headings and the file names.

New page for each directory

When selected, ThumbsCD will start a new page for each directory.

Print file names

Select this checkbox to cause ThumbsCD to print the file name for each file under its thumbnail. Unselect it to cram more thumbnails onto a page.

Preview Window

This window shows a miniature layout of the page, per the options you have selected.

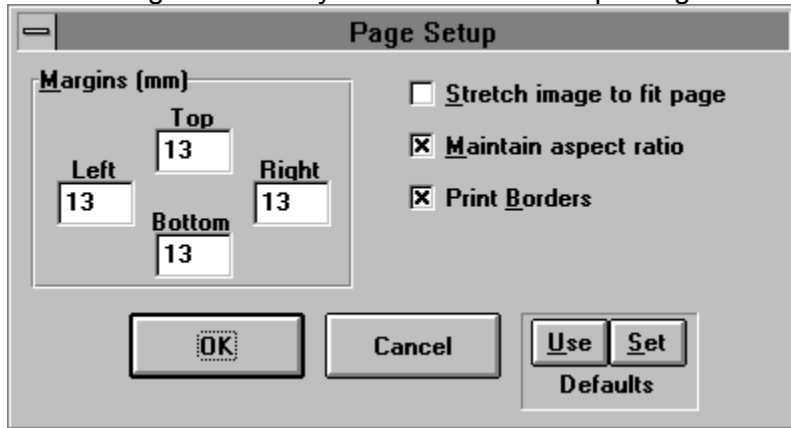## File - Print   F9

This selection prints all selected graphics files. Each prints on a separate page, with no textual information. You can set the margins and other options using the Page Setup dialog box. To print a catalog of thumbnails, use the Print Catalog menu option.

File - Page Setup   Ctrl+F9

This dialog box allows you to customize the printing of individual graphics files.

```
┌─────────────────────────────────────────────────┐
│ ─│          Page Setup                            │
├─────────────────────────────────────────────────┤
│  ┌─Margins (mm)──────────┐                        │
│  │        Top             │  ☐ Stretch image to fit page
│  │       ┌────┐           │                        │
│  │       │ 13 │           │  ☒ Maintain aspect ratio
│  │  Left └────┘ Right     │                        │
│  │ ┌────┐      ┌────┐     │  ☒ Print Borders       │
│  │ │ 13 │      │ 13 │     │                        │
│  │ └────┘Bottom└────┘     │                        │
│  │       ┌────┐           │                        │
│  │       │ 13 │           │                        │
│  │       └────┘           │                        │
│  └───────────────────────┘                        │
│                                                   │
│   ┌────────┐  ┌────────┐  ┌─────┬─────┐           │
│   │  OK    │  │ Cancel │  │ Use │ Set │           │
│   └────────┘  └────────┘  └─────┴─────┘           │
│                              Defaults             │
└─────────────────────────────────────────────────┘
```

Margins

Set the top, left, right and bottom margins on the page (in inches).

Stretch image to fit page

Will cause ThumbsCD to stretch the images to fill the printed page (within the margins).

Maintain aspect ratio

When selected, ThumbsCD will ensure the the width and height maintain the ratio in the original image, to avoid distortion.

Print Borders

Causes ThumbsCD to draw a simple black rectangle around the edge of the image.

File - Printer Setup   Ctrl+F8

This selection displays the Printer Setup dialogbox, which allows you to select an alternate printer and set printing options.
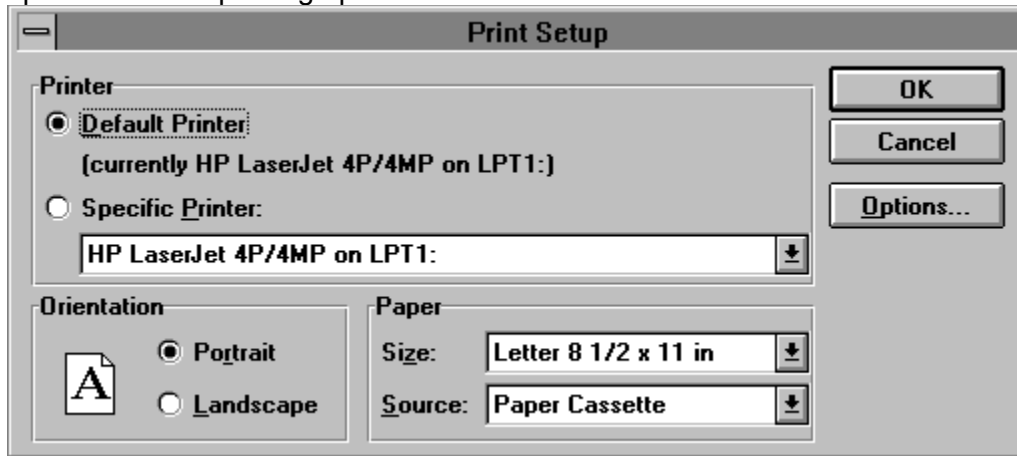
File - Exit   Alt+F4

Select this option to exit ThumbsCD

Edit	Tree	Thumbnail	Option
<u>C</u>opy		Ctrl+C	
<u>P</u>aste		Ctrl+V	
<u>S</u>elect All		Ctrl+A	
C<u>l</u>ear All		Ctrl+Shift+A	
<u>A</u>uto Clip Save...		Ctrl+Shift+C	

Click on any selection above.

Edit - Copy   Ctrl+C

This option copies the first selected file to the clipboard in the appropriate format for the file (bitmap for raster images or metafilefor vector images).

If no files are selected, this menu option is grayed.

You can make this option the default (double-click) option from the General Options dialog box.

Edit - Paste   Ctrl+V

This option pastes the current clipboard contents to a ThumbsCD <u>View Window</u>. If the clipboard is empty, or the contents are not in a recognized graphics format, this options is grayed.

Edit - Clear All   Ctrl+A

This option deselects all selected files in the <u>file list</u>.

Edit - Select All   Ctrl+Shift+A

This option selects all files in the <u>file list</u> for processing by any of the commands which accept multiple files, such as <u>view</u>, <u>info</u> or <u>slide show</u>.

Edit - Auto Clip Save   Ctrl+Shift+C

This selection allows you to automaticly save the clipboard contents to a disk file each time they change (and a compatible format -- bitmap or metafile -- is on the clipboard).

This is very useful for window or screen capture, too -- turn it on, and each time you press PrintScreen (for the entire screen) or ALT+PrintScreen (for the current window), ThumbsCD will save the screen or window as a graphic file.
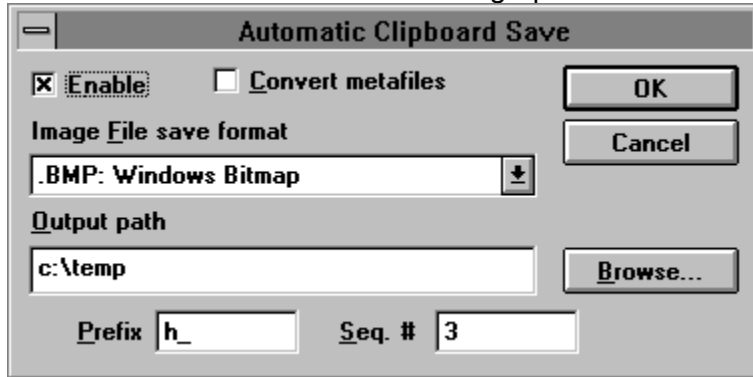
Enable

When checked, automatic clipboard saving is enabled. The Auto Clip Save menu selection is also checked when enabled.

Convert Metafiles

When checked, metafiles on the clipboard will be rasterized and saved; otherwise, they will be saved as Windows metafiles (.WMF).

Image File save format

Select the desired file type to save.

Output Path

Select the directory where you want the auto-saved files to be stored. The **Browse** button allows you to find a directory easily.

Prefix

Enter a prefix for the file name. Use less than 8 characters; whatever is left will be filled in with a sequence number. For example, if you enter SCRN here, and select BMP as the type, the files will be saved as SCRN0000.BMP, SCRN0001.BMP, etc.

Seq.

This is the next sequence number to use in the generated file names.

Tree	Thumbnail	Options	Window	Help

Tree menu:

Expand One Level	+
Expand Branch	*
Expand All	Ctrl+*
Collapse Branch	-
Collapse All	Ctrl+/
Collapse to Path	/
Refresh Tree	Ctrl++
Indicate Expandable	Ctrl+Shift+X
√ Indicate Thumbnails	Ctrl+Shift+I
List Thumb Dirs Only	Ctrl+Shift+O
√ Show Offline Volumes	Ctrl+Shift+F

Click on any selection above.

Tree - Expand Branch Keypad *

This option expands the currently selected directory entry in the **Directory List** by showing any sub-directories. Any sub-directories are also expanded, thereby showing this "branch" of the tree in its entirety.

If Indicate Expandable is checked, the folders for directories which have sub-directories are marked with a '+'.

If Indicate Thumbnails is checked, directories are color-coded to indicate the presence of thumbnails.

Tree - Expand One Level   Keypad +

This option expands the currently selected directory entry in the **Directory List** by showing any sub-directories. Double-clicking an expandable entry also performs this action.

If Indicate Expandable is checked, the folders for directories which have sub-directories are marked with a '+'.

If Indicate Thumbnails is checked, directories are color-coded to indicate the presence of thumbnails.

Tree - Expand All   Ctrl + Keypad *

This option expands **all** branches of **all** drives and off-line volumes in the directory tree.

Tree - Collapse Branch   Keypad -

This option hides any subdirectories of the currently selected entry. Double-clicking on an expanded entry also does this.

If <u>Indicate Expandable</u> is checked, the folders for directories which can be collapsed are marked with a '-'.

Tree - Collapse All   Ctrl + Keypad /

Hides all directories, leaving only the top level (drive and off-line volume) entries.

Tree - Collapse to Path   Keypad /

This option collapses all entries except those directories on the currently-selected path. For example, if the current directory is C:\WINDOWS\SYSTEM, all entries for drives other than C are hidden, all first-level directories of C: are shown, and all sub-directories of WINDOWS are shown.

Tree - Refresh Tree   Ctrl + Keypad +

This option rereads the directory tree. Use this option if you change the directory structure from another application. This option also collapses the tree to the current path (<u>Tree - Collapse to Path</u>).

Tree - Show Offline Volumes   Ctrl+Shift+F

Select this option to display disks which have been scanned but are not currently on an inserted disk. This will display each such volume as a small diskette, with the disk label next to it. For this option to operate properly, it is important that each diskette have a unique label. This options works for CDROMs as well as diskettes.

Tree - Indicate Expandable   Ctrl+Shift+X

Checking this menu item causes ThumbsCD to display a '+' in directory entries which contain sub-directories and may be expanded, or '-' in directory entires which are already expanded.

Tree - Indicate Thumbnails   Ctrl+Shift+I

Checking this option causes ThumbsCD to use differently colored folders to indicate "interesting" directories. Folders for directories which contain thumbnails are colored green; folders for directories which do not themselves have thumbnails, but whose subordinate directories do, are colored blue.

Tree - List Thumb Dirs Only   Ctrl+Shift+O

Select this option to only show directories which contain thumbnails.

Options	Window	Help	
General...			Ctrl+O
File types...			Ctrl+F
Confirmations...			Ctrl+N
Viewer...			Ctrl+W
Slide show...			Ctrl+S
Monitor Gamma...			Ctrl+M
JPEG Loading...			Ctrl+J
Photo CD Loading...			Ctrl+H
Save All Options			Ctrl+Shift+S
Restore All Options			Ctrl+Shift+R
Save Startup Directory			Ctrl+Shift+D
Save Position & Database			Ctrl+Shift+P
√ Toolbar			Ctrl+Shift+B
√ Status Line			Ctrl+Shift+L

Click on any selection above.

Options - Save Position and Database   Ctrl+Shift+P

This option saves ThumbsCD's current window position, size and start-up database. Subsequent runs of ThumbsCD will place the main window at its current position.

To change the initial directory selected in the directory list, use the **Properties** option on the **File** menu in Program Manager to change the **Startup Directory** for ThumbsCD.
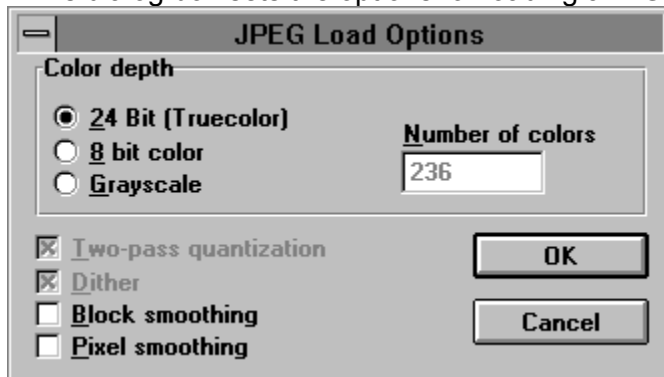
Options - Save Startup Directory   Ctrl+Shift+D

This option saves the current directory as the startup directory for the current database; whenver you open this database, ThumbsCD will position to the current directory. This helps, for example, if you have a "Fonts" database, and a directory containing fonts. You can set the startup directory for the Fonts database to the Fonts directory, so that you don't have to click around in the directory list to find the fonts.

Options - JPEG Loading   Ctrl+J

This dialog box sets the options for loading JPEG files.

```
┌─────────────────────────────────────────────┐
│ ▬ │          JPEG Load Options               │
├─────────────────────────────────────────────┤
│ ┌─Color depth──────────────────────────────┐ │
│ │  ◉ 24 Bit (Truecolor)                    │ │
│ │  ○ 8 bit color      Number of colors     │ │
│ │  ○ Grayscale        ┌──────────┐         │ │
│ │                     │ 236      │         │ │
│ │                     └──────────┘         │ │
│ └──────────────────────────────────────────┘ │
│  ☒ Two-pass quantization    ┌────────────┐   │
│  ☒ Dither                   │    OK      │   │
│  ☐ Block smoothing          └────────────┘   │
│  ☐ Pixel smoothing          ┌────────────┐   │
│                             │   Cancel   │   │
│                             └────────────┘   │
└─────────────────────────────────────────────┘
```

The JPEG library allows you to select how to load JPEG files. JPEG files are always stored as 24-bit (truecolor) images, but the library can automatically dither them to 8-bits for displaying on 256-color devices. This dithering will interfere with editing, however: if you want to edit JPEG files on an 8-bit display, it is best to load them as Truecolor even though they don't look as nice. In other words, on an 8-bit (256 color) display, JPEGs are best loaded for *viewing* as **8-bit color**, but best loaded for *conversion or editing* as **24-bit (Truecolor)**. For quick viewing on 8-bit displays, load them as **Grayscale**.

The **Two-Pass Quantization** and **Dither** options apply only if loading as 8-bit color; deselecting either or both will speed the load and conversion to 8-bit, at a great sacrifice in appearance. The JPEG load dithering is similar to the Floyd-Steinberg dithering available as an option in the Color Depth dialog box.

Block Smoothing and **Pixel Smoothing** can, in some cases, improve the appearance of JPEG images.

Options - PhotoCD Loading   Ctrl+H
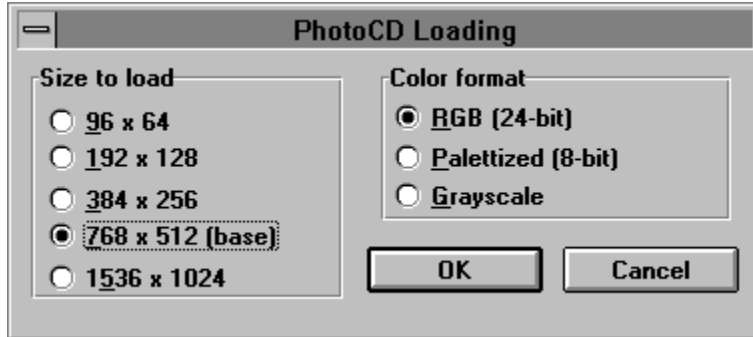
This dialog box selects the options for loading PhotoCD images.

The **Size to load** section allows you to select the desired size of the loaded image. Note that the horizontal and vertical sizes will be reversed for images stored in portrait orientation.

The **Color format** section allows you to select the color resolution of the loaded image.

Options - Monitor Gamma   Ctrl+M

This option allows you to calibrate the <u>gamma correction</u> value for your monitor. A gamma value of 0.0 means that ThumbsCD will not gamma correct any image.
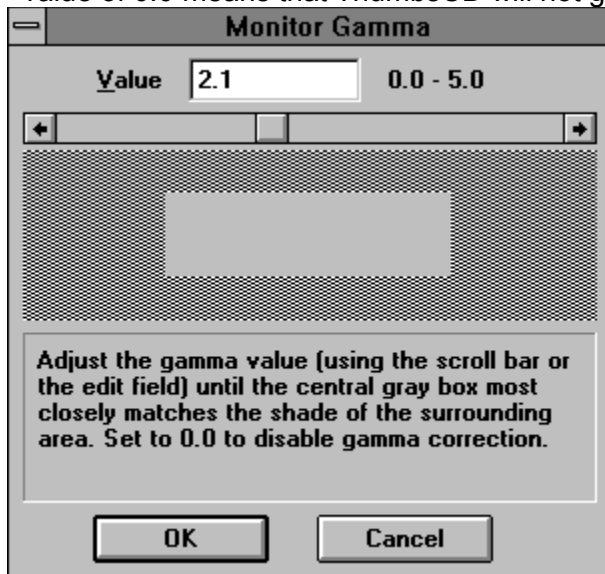
Simply adjust the scroll bar, using either the arrows at the ends or by dragging the central box, until the central gray square is as close as possible to the color of the surrounding pattern. For best results, calibrate in a darkened room.

As some monitors exhibit different characteristics at different display resolutions and color depths, ThumbsCD will save a different gamma value for each combination.

Some image types have a specific gamma value for which they are corrected (for example, GIF files are corrected for a monitor gamma of 2.0). If you choose to use gamma correction, you need to set each type appropriately, from the <u>Assumed Gamma</u> dialog box. Unless this value is set for a specific file type, it will not be adjusted.

Options - Status Line   Ctrl+Shift+L

This menu option toggles the status line on or off.

Options - Toolbar   Ctrl+Shift+B

This menu option toggles the <u>toolbar</u> on or off.

Options - File Types   Ctrl+F
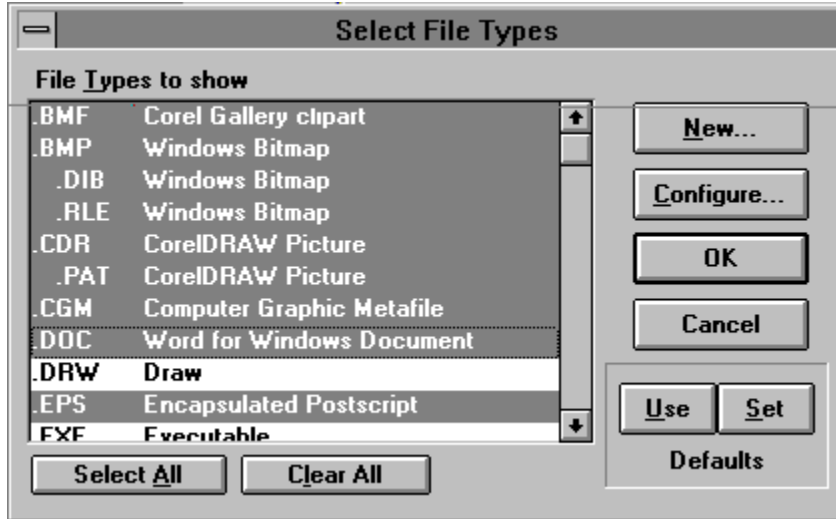
New. Runs the File Type Configuration dialog box so you can define a new file type for ThumbsCD to handle.

Configure. Runs the File Type Configuration dialog box to change the configuration of a specific file type.

Select All. Select this option to show all configured file types in ThumbsCD. Files that are not recognized will not have thumbnails, but you can move, copy, delete and rename these files.

Clear All. Select this option clear all selected file types, so you can start selecting from scratch.

Defaults - Use. Reverts settings in this dialog box to those stored in the ThumbsCD profile (.INI) file.

Defaults - Set. Saves the current settings as the defaults in your ThumbsCD profile (.INI) file.

File Type Configuration

This dialog box, which is accessed from the Options - File Types dialog box using the **New** or **Configure** button, allows you to define a new file type for ThumbsCD to support, or to modify the configuration of a specific type.

ThumbsCD can recognize any file type it supports internally, regardless of its specific name or extension. However, for files accessed through external filters or OLE, the extension may be important.

Extension. Enter the one, two or three character extension (without the period) for the file type to define.

Description. Enter a description of the file type. If the file type is equivalent to another (see below) you can leave the description blank --ThumbsCD will automatically use the description of the base file type.

Equivalent to type. If the file type is equivalent to a type already known to ThumbsCD, select that type here. This will disable most of the other entries in the dialog box, since the access to the type is defined through its base type.

Class. Select the type of file. For most purposes, Vector and Raster are appropriate. Several of the types give more information about the type of file and may be useful for categorizing OLE-based files. OLE-based types not classed as Raster are loaded as Vector.

Load file using. Select the method that ThumbsCD should use to load the file:

Internal - ThumbsCD should use its internal loading routines to load the file. The file must be recognizable by ThumbsCD.

Filter - Use a Aldus Rev. 1 filter to load the file. The next field (**>>**) should be used to select the filter; if the list is blank, use   the Hunt for filters button to search for filters on your system.

OLE - ThumbsCD should attempt to attach to an OLE server for the file type to render it as a metafile or bitmap. Select the appropriate server from the next (**>>**) field.

None - ThumbsCD should not attempt to load the file. It can still be shown in the file list, with an appropriate icon, if Edit Using is set to Association.

Edit file using. Select the method that ThumbsCD should use to edit the file. Note that raster images may be edited to some degree from within a ThumbsCD view window.

> **Association** - Use the Windows File Manager association, as registered by FIle Manager, to launch the program to edit the file. If you don't select a specific item from the next list (**>>**), ThumbsCD will use the file extension to attempt to locate an association.

> **Command** - Enter a specific command to edit the file. You can use '%F' in the string as a token to be replaced by the file name.

> **None** - Don't attempt to launch an editor for this file type.

Print file using. Select a method for printing the file type If it is loadable into ThumbsCD, the **Internal** method usually works best. Otherwise, you may select **Command** or **Association**, as described under **Edit File Using**.

Hunt for filters. This button brings up a dialog box from which you can scan your disk drives searching for Aldus Rev 1 graphic filters to be used for loading graphics files. Note that Accusoft filters (which usually end in 9, as in IMWPG9.FLT) will be found, but will not work properly.
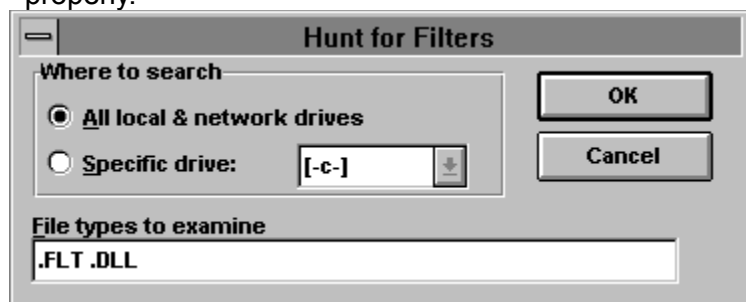
Options - General   Ctrl+O

This option displays a dialog box which allows you to set the parameters for the operation of ThumbsCD
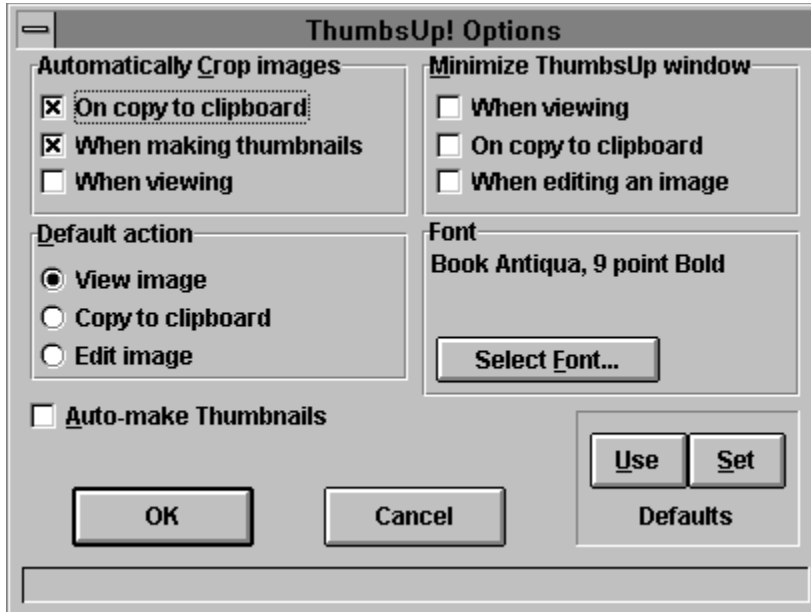
Automatically Crop Images. Automatically crops, by removing all continuous border of the same color, any image. This may be on or off for each of the following operations:

    On copy to clipboard
    When making thumbnails
    When viewing

Default Action. Selects the default action (taken for a double-click with the left mouse button). Select one of the following operations:

    View Image
    Copy to Clipboard
    Edit Image

Font. Shows the currently selected font for the **Image List** and the **Directory List** in the main window. Click on **Select Font** to change this font.

Minimize ThumbsCD Window. Selects times when you would like the ThumbsCD main window to automatically reduce to an icon for less screen clutter; similar to the **Minimize on Use** option in the program manager. You may elect to minimize ThumbsCD at any of the following times:

    When viewing
    On copy to clipboard
    When editing an image

Images to display concurrently. Selects the maximum number of View windows which ThumbsCD can manage at one time. Select a number between 2 and 40.

Defaults - Use. Reverts settings in this dialog box to those stored in the ThumbsCD profile (.INI) file.

Defaults - Set. Saves the current settings as the defaults in your ThumbsCD profile (.INI) file.
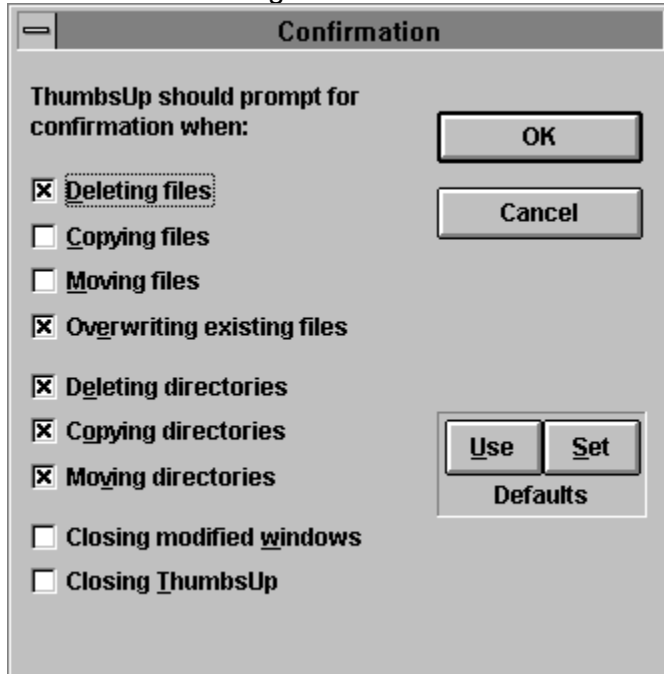
Options - Confirmations   Ctrl+N

This menu selection allows you to configure which items ThumbsCD prompts for confirmation. For example, if you want ThumbsCD to make sure before deleting files, that option should be checked. The dialog box looks like this:

```
┌──────────────────────────────────────────────┐
│ ═    │              Confirmation               │
├──────────────────────────────────────────────┤
│  ThumbsUp should prompt for                    │
│  confirmation when:            ┌──────────────┐│
│                                │      OK      ││
│  ☒ Deleting files              └──────────────┘│
│  ☐ Copying files               ┌──────────────┐│
│  ☐ Moving files                │    Cancel    ││
│  ☒ Overwriting existing files  └──────────────┘│
│                                                │
│  ☒ Deleting directories                        │
│  ☒ Copying directories        ┌───────┬───────┐│
│  ☒ Moving directories         │  Use  │  Set  ││
│                               └───────┴───────┘│
│  ☐ Closing modified windows       Defaults     │
│  ☐ Closing ThumbsUp                            │
│                                                │
└──────────────────────────────────────────────┘
```

Each option determines whether or not ThumbsCD will display a dialog box to confirm the listed operation after it is selected.

Defaults - Use. Reverts settings in this dialog box to those stored in the ThumbsCD profile (.INI) file.

Defaults - Set. Saves the current settings as the defaults in your ThumbsCD profile (.INI) file.

Options - Slide Show   Ctrl+S

This dialog box allows you to control the operation during a <u>Slide Show</u>.

```
┌─────────────────────────────────────────────────────┐
│ ▬              Slide Show Setup                       │
├─────────────────────────────────────────────────────┤
│ ┌─Delay between slides─┐   ☒ Stretch bitmaps to fill screen │
│ │                      │   ☒ Maintain original aspect ratios│
│ │ 3         seconds    │   ☒ Hide cursor                    │
│ │                      │   ☒ Build bitmaps from metafiles   │
│ │ ☐ Control manually   │   ☒ Skip files smaller than:       │
│ └──────────────────────┘                             │
│ Background color              ┌────┐   ┌────┐         │
│ ┌──────────────────────┐▼     │ 64 │ x │ 64 │         │
│ └──────────────────────┘      └────┘   └────┘         │
│                                                       │
│   ┌───────┐   ┌───────┐       ┌────┬────┐             │
│   │  OK   │   │ Cancel│       │ Use│ Set│             │
│   └───────┘   └───────┘       └────┴────┘             │
│                                  Defaults             │
└─────────────────────────────────────────────────────┘
```

Delay between slides

Select either a number of seconds that ThumbsCD will wait between slides, or mark the **Control manually** checkbox to manually switch slides (using the left mouse button or the space bar).

Background color

Select the background color to use for images smaller than the screen.

Stretch bitmaps to fill screen

Causes ThumbsCD to stretch images to fill the screen as much as possible.

Maintain orignal aspect ratios

When stretching bitmaps, ThumbsCD will ensure that the width-to-height ratio remains constant, rather than distorting the image.

Hide cursor

Hides the mouse cursor during the slide show.

Build bitmaps from metafiles

When this checkbox is selected, ThumbsCD will build an in-memory bitmap from a metafile before displaying it. This eliminates watching the metafile draw.

Skip files smaller than

When selected, ThumbsCD will not display images smaller than the entered size. ThumbsCD cannot always determine the size before viewing; so, for example, TIFF files will display regardless of their size.

Defaults - Use. Reverts settings in this dialog box to those stored in the ThumbsCD profile (.INI) file.

Defaults - Set. Saves the current settings as the defaults in your ThumbsCD profile (.INI) file.

Options - Viewer   Ctrl+W

You control the operation of viewing files with this dialog box.
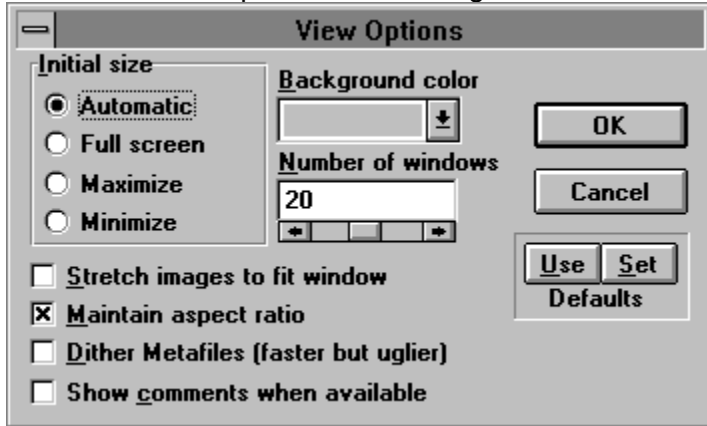
Initial Size

Automatic   The size of the view window is based on the size of the image or metafile being displayed.

Full Screen   The entire screen is used to display the picture, without menu bar or caption. See <u>View - Full Screen</u> for more information on this mode.

Maximize   The window is maximized.

Minimize   The window is iconized.

Stretch images to fit window

Images are stretched to fill as much of the window as possible, depending on the setting of **Maintain aspect ratio**.

Maintain aspect ratio

The ratio between the width and height of the image is kept constant, to avoid distorting the image.

Dither Metafiles

Windows Metafiles generally include 24-bit color information. On 256-color palette-based displays, these colors will be <u>dithered</u>. ThumbsCD generates (up to) 236-color palettes for displaying metafiles, resulting in much smoother displays. However, generating the palette and modifying the metafile display to take it into account slows the display process down. Select this option if you are in a hurry. Also select this option if you are using a 16-color or 24-million color display driver.

Background color

Select a background color for the sides or top if the window is larger than the image.

Number of windows

ThumbsCD can display multiple view windows simultaneously. Once this limit is reached, ThumbsCD will close the oldest window before opening another.

Defaults - Use. Reverts settings in this dialog box to those stored in the ThumbsCD profile (.INI) file.

Defaults - Set. Saves the current settings as the defaults in your ThumbsCD profile (.INI) file.

Options - Save All Options   Ctrl+Shift+S

This menu selection saves the current ThumbsCD configuration (profile)as the default when starting ThumbsCD. The information saved includes:
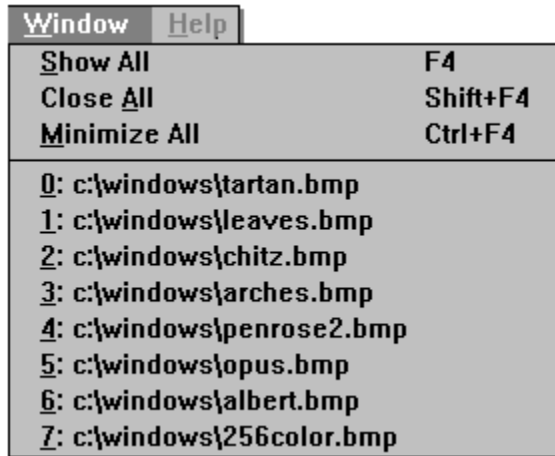
All options in the Options dialog boxes.

The current directory tree options, from the Tree menu.

The Toolbar and Status Line settings, from the Options menu.

Options - Restore All Options   Ctrl+Shift+R

Use this selection to set all ThumbsCD options to their last saved settings, as saved from within the dialog boxes or by the Options - Save All Options selection.

Window | Help

Show All	**F4**
Close All	**Shift+F4**
Minimize All	**Ctrl+F4**

0: c:\windows\tartan.bmp
1: c:\windows\leaves.bmp
2: c:\windows\chitz.bmp
3: c:\windows\arches.bmp
4: c:\windows\penrose2.bmp
5: c:\windows\opus.bmp
6: c:\windows\albert.bmp
7: c:\windows\256color.bmp

Click on any selection above.

This menu also contains a list of all currently opened windows. Selecting any of these entries will cause that window to display.

Windows - Show All   F4

Causes ThumbsCD to display all open <u>view windows</u> (in the order they were opened). Minimized (iconized) windows are restored; hidden windows are brought to the front.

Windows - Close All   Shift+F4

Closes all opened view windows. If you have selected confirmation on closing modified windows from the General Options dialog box, ThumbsCD will prompt you before closing any modified windows.

Windows - Minimize All   Ctrl+F4

This option will minimize (reduce to an icon) all open <u>view windows</u>. These icons display on the normal Windows <u>desktop</u> for easy access.

Help - Contents   F1

Displays the <u>Contents</u> section of this help file.

File - Save   Ctrl+S

This option saves the current file under its current name. It may be used to save a <u>cropped</u> or otherwise modified image. ThumbsCD currently only supports three formats for saving files: Windows <u>Bitmap</u> and Compuserve GIF formats for raster images, and Windows <u>Metafile</u> format for vector images.

If the current file has an extension representing another format (such as .PCX or .CGM), it is changed to reflect the format being saved (.BMP, .GIF or .WMF).

File - Save As   Ctrl+A

This option saves the current file, allowing you to select a file name from a standard Windows Save As dialog box. It may be used to save a cropped or otherwise modified image. ThumbsCD currently supports several types to save as: BMP, GIF, JPG, TGA and PCX for images, and WMF for metafiles.

Some file types also have optional information (such as comments) which can be saved in the file. If there are options available for the type you select, an Options dialog box will appear after you click OK in the Save As dialog box.

The JPEG Save Options dialog box even shows a preview of the "lossiness" of the compression.

If the current file has an extension representing another format (such as .PCX or .CGM), it is changed to reflect the format being saved.

File - Save As - JPEG Save Options
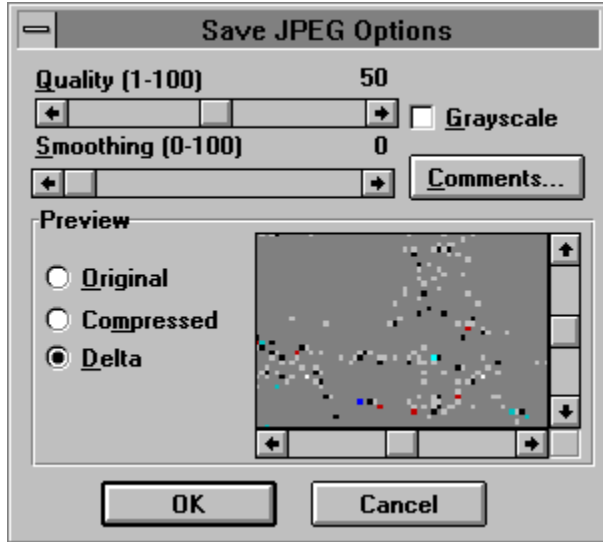
Quality

Select a quality value, between 1 and 100. Values between 25 and 95 are recommended. Values below 25 are likely to degrade the image far too much, and values above 95 make the file larger without any appreciable quality increase.

Smoothing

This option is sometimes useful for storing dithered 256-color images as JPEGs; it attempts to smooth the differences between pixels caused by dithering, but tends to blur the image somewhat.

Grayscale

Stores the image as a single-channel, 8-bit grayscale image. This removes all color information from the image.

Comments

Click on this button to edit or add comments to the image file.

Preview

Allows you to see the effect of the lossy compression on the image. You may scroll this preview around to different parts of the image to see the effect on specific details. The Delta option shows the differences between pixels, before and after compression. Medium gray is "zero difference."

A truecolor or highcolor (24-bit or 16-bit) display driver is required to utilize the JPEG loss preview.

File - Print

This selection prints the graphic in the current view window. All options from the <u>Page Setup</u> and <u>Printer Setup</u> dialog boxes are applied.

File - Close   Alt+F4

This option closes the view window and removes it from the screen. If you have modified the image and selected confirmation for closing modified images (from the <u>Confirmations</u> dialog box), ThumbsCD will ask you if you wish to save the modified image.

File - Close All   Shift+Alt+F4

This option closes all open view windows. If you opted to confirm closing modified images (from the <u>Confirmations</u> dialog box), ThumbsCD will prompt you to save each one before closing it.

File	Edit	View	Help	ThumbsUp!

Save	Ctrl+S
Save As...	Ctrl+A
Close	Alt+F4
Close All	Shift+Alt+F4
Print...	F9
Page Setup...	Ctrl+F9
Printer Setup...	Ctrl+F8

Click on any selection above.

Edit - Copy   Ctrl+C

This menu selection copies the currently selected area in the view window to the clipboard.

Edit - Crop   Ctrl+R

Use this menu option to reduce the view window to only the selected area of the image.
Anything outside the selected area is eliminated. This change will only be written to the disk file
if you use the <u>File-Save</u> or <u>File-Save As</u> option.

Edit - Cancel Selection   ESC

This option removes the selection rectangle from the window.

Edit - Undo   Ctrl+Z

This selection restores the image to its state before the last <u>Rotate, resize</u>, <u>Color Adjustment</u>, <u>Color Depth</u>, or <u>Crop</u> operation.

This menu item will show what will be undone, or show "Can't undo" if there is nothing to undo. Some operations are not saved for undo, as they can be re-selected to undo them.

Edit - Select All   Ctrl+E

This option selects the entire contents of the view window for processing.

Edit - Thumbnail from Selection   F2

This selection uses the currently selected area in the view window to generate a thumbnail for the image. This is especially useful for clipart files which contain many related images. You can select a representative part of the file and create the thumbnail from only that part.

Edit	Image	View	Help		ThumbsUp!
Undo					
Copy				Ctrl+C	
Crop				Ctrl+R	
Cancel				ESC	
Select All				Ctrl+E	
Thumbnail from Selection				F2	
Autocrop				F4	

Click on any selection above.

This menu provides options that operate on a selected area in the view window. Only bitmaps can be selected from; to operate on a portion of a metafile, it must first be converted to a bitmap using the View-Convert to Bitmap option.

Use the mouse to select an area in the view window: press the left mouse button to start a selection area at one corner, and hold it down while moving the mouse to the opposite corner. Then release the mouse button. ThumbsCD will draw a rectangle around the selected area. If the area is large enough, ThumbsCD will also display the selected area size in a small rectangle in the center of the area.

To select an area from the center out, hold the SHIFT key down, press the left mouse button at the place you want to be the center of the selection, and drag the mouse to a corner. Then release the mouse button.

View - Autosize Window   Ctrl+F6

This option will make the view window the same size as the image displayed in it (if possible).

View - Assumed Gamma   G

This dialog box allows you to assign the assumed gamma value for an image, and to set the default for a file type (so that any files loaded with the given type will be assumed to be adjusted for that gamma value.)
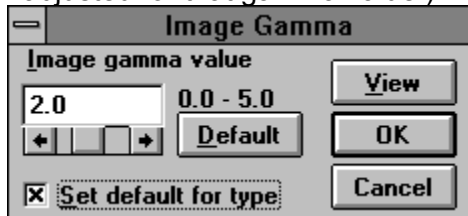
Use the arrows or the mouse to change the assumed gamma value.

Select a value of zero (0.0) to turn off gamma correction for this image.

Check **Set Default for Type** to assume the selected value for all loaded images of this file's file type.

If you're using a palette-based (256-color) display driver, the change will be immediately visible. For 24-bit (truecolor) and 16-bit (highcolor) displays, you must click on the **View** button to see the changes.

View - Maintain Aspect Ratio   Shift+F6

This option causes ThumbsCD to maintain the original file's aspect ratio when stretching to fill the window. This applies to both <u>metafiles</u> and <u>bitmaps</u>.

View - Zoom to Fit   F6

When this option is checked, the image will be stretched (or shrunk) to fill the size of the window. Note that you cannot select portions of the image when stretched.

View - Zoom Out   Shift+Z

This function zooms back out after Zooming in.

View - Zoom In   Z

This selection "zooms in" on the current image, showing each pixel as a square or rectangle. It is useful for viewing details in an image. It does not modify the image itself -- use <u>Image - Rotate/Resize</u> for changing the size of an image.

You can select Zoom In multiple times to view progressively smaller areas of an image.

View - Comments   F7

When this option is available, it indicates that the graphic being viewed has comments embedded in it. Select it to view these comments. Comment viewing is currently supported for the following types of files:

GIF   - version 89a comment field

JPEG - COM marker field(s)

Targa - Description field in header

View - Full Screen   F3

This option causes the View Window to use the entire screen, without title bar or menus. If the image is larger than the screen, you will still have scroll bars. While in full screen mode, use the right mouse button or the F10 key to see the View Window menus, which will appear vertically instead of horizontally. You can perform any of the View Window commands while in full screen mode; however, cropping an image will reduce the window to the size of the cropped image. You can select View-Full Screen again or press F3 to exit full screen mode.

Edit - Autocrop   F4

This option automatically crops the current image, removing any edges composed entirely of the same color. The <u>pixel</u> in the bottom left corner of the image is used as the reference pixel. Each of the four sides is compared to this pixel; any side entirely of that color is removed. This process is repeated for each side until a pixel of a different color is found.

Image - Count Unique Colors   U

This option counts the number of colors in an image. For images stored as 8 bits per pixel or fewer, it is very fast; but for 24-bit images, it may take a while (and temporarily use up to 2Mb of memory). If there is insufficient memory to count the actual colors in an image, ThumbsCD will ask if you want an estimate instead.

Image - Invert   I

This selection inverts an image -- each color becomes the opposite color, creating a negative effect. This is most useful for printing Compuserve stock trend charts (and other dark drawn images), which otherwise use lots of toner or ink. It can also be useful for some incorrectly stored TIFF or PCX images (marked as MIN_IS_BLACK, but stored as MIN_IS_WHITE).

This option is its own inverse, so it is not saved for undoing.

Image - Swap Red & Blue   W

This option swaps the red and blue values of each pixel or color map entry. It is useful for images (especially Sun Raster) which are saved with these values reversed. Note that this operation is not saved for undo, as selecting it again undoes it.

Image - Flip Vertical   V

This option reverses the image from top to bottom. Note that this operation is not saved for undo, as selecting it again undoes it.

Image - Flip Horizontal   H

This option reverses the image from left to right. Note that this operation is not saved for undo, as selecting it again undoes it.

Image - Rotate/Resize   R

This dialog box allows you to either rotate or resize an image, or both simultaneously. You can also control how the rotation occurs (whether the corners are cut off) using a zoom control.
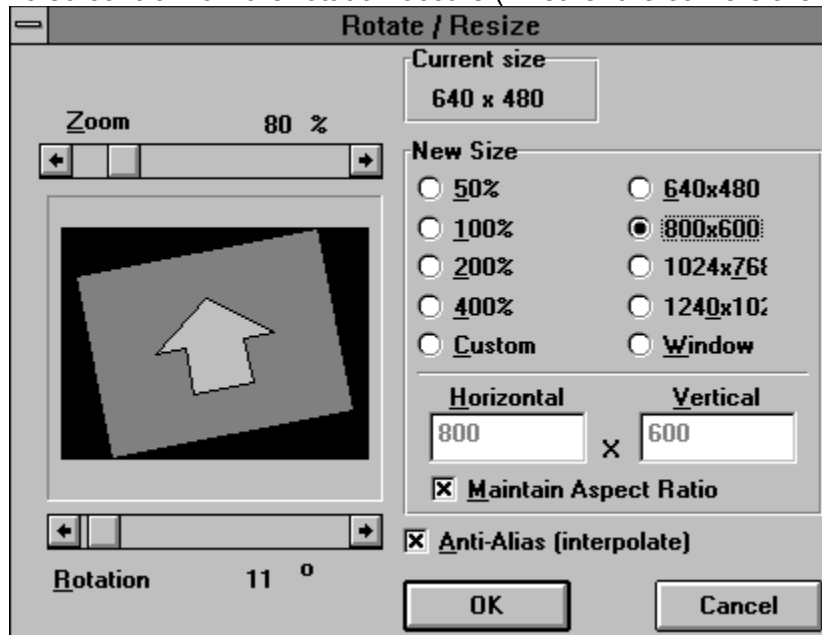
Zoom

Zooms in or out. This is most useful for controlling what happens to the corners of the image during rotation. Use the arrow keys or mouse to slide the control box left or right to decrease or increase the zoom amount.

Rotation

Angle (counter-clockwise) of rotation, in 1-degree increments.

New Size

Various options for the new size of the image, include specific percentages and specific sizes. You can also select Window to size the image to the current window size, or Custom to enter specific values.

Maintain Aspect Ratio

Selecting this box will ensure that the aspect ratio (ratio of width to height) in the final image matches the original. Unselect to "stretch" an image more in one direction than the other.

Anti-Alias (Interpolate)

Selecting this box (highly recommended!) will cause ThumbsCD to set the values of new pixels to averages of surrounding pixels. This requires that the image be either 24-bit color or 256-gray level. If it is not, ThumbsCD will automatically change the color depth.

ThumbsCD remembers the last settings from this dialog box so that you can re-use them for additional images, or for batch processing.

If you rotate or resize a 256 (or fewer) color image and select interpolation, ThumbsCD will automatically promote it to 24-bit to be able to interpolate intervening pixels. You can then use the Color Depth selection to adjust the colors to the number you desire.

Image - Color Depth D

Use this window to modify the color depth of an image. For example, it will convert a color image to grayscale, or a 24-bit image to 8-bit, or just about anything to monochrome (bi-level).

```
┌─────────────────────────────────────────────────┐
│ ▭              Color Depth                       │
├─────────────────────────────────────────────────┤
│  ┌───────────────────────────────────────────┐  │
│  │       Current:    Truecolor               │  │
│  └───────────────────────────────────────────┘  │
│  ┌─Desired Color Depth─┐ ┌─Process────────────┐  │
│  │  ○ Monochrome       │ │ Palette            │  │
│  │  ○ 16 Colors        │ │ ┌────────────────┐ │  │
│  │  ○ 236 Colors       │ │ │Optimized (median cut)│▼│ │  │
│  │  ◉ 256 Colors       │ │ Dither             │  │
│  │  ○ Truecolor        │ │ ┌────────────────┐ │  │
│  │  ○ Custom:  ┌─────┐ │ │ │Stucki          │▼│ │  │
│  │             │ 256 │ │ │ ☒ Reduce error propogation│ │
│  │             └─────┘ │ │ ┌──────┐  ┌────────┐│  │
│  │                     │ │ │  OK  │  │ Cancel ││  │
│  └─────────────────────┘ └──────┘  └────────┘│  │
└─────────────────────────────────────────────────┘
```
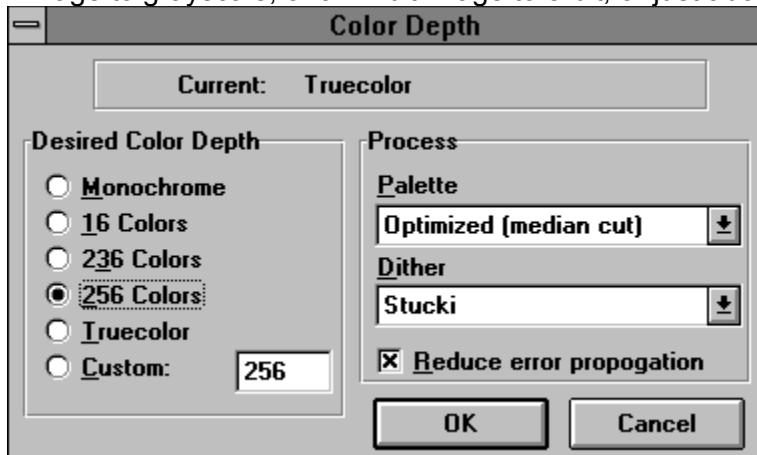
Desired Color Depth

Select the number of colors you desire in the final image.

Monochrome (bi-level) Selects a two-color (black & white) destination image. Each pixel requires a single bit.

16 Colors Selects a sixteen-color destination image; each pixel requires 4 bits.

236 Colors Selects a 236-color destination image; each pixel requires 8 bits. This selection is useful for 256-color Windows users, as it leaves the 20 colors that Windows requires.

256 Colors Selects a 256-color destination image; each pixel requires 8 bits.

Truecolor Selects a 24-bit destination image; each pixel requires 24 bits.

Custom Select a number between 4 and 256. For color counts between 4 and 16, 4 bits per pixel are required; for a count of greater than 16, 8 bits per pixel are required.

Palette

Unless converting to Truecolor, you must select the palette to use. Several fixed and optimized palette selections are available:

Optimized (median cut) Uses the "median cut" algorithm to select a color palette that best matches the colors of the original image.

Optimized (popularity) Selects the *n* most-used colors in the original image.

Grayscale Creates a fixed levels-of-gray palette, with *n* evenly spaced colors.

ThumbsCD Color Selects the same colors used in the ThumbsCD thumbnails; this is also the palette used for the Quick Dithering option (see below).

Windows Color Uses the 16 standard Windows colors (yuck - but sometimes you need 'em).

Standard VGA Selects the default 16 VGA palette colors.

6x7x6 Even Distribution Creates a palette with 6 levels of red, 7 of green and 6 of blue, evenly spaced. (Not very pretty for most images, but okay for some dithering jobs.)

Pasted from Clipboard Pastes a palette from the image on the clipboard. This is useful for adapting several images to a common palette.

Dither

When reducing the number of colors in an image, you may select a <u>dithering</u> method from those listed below.

(none) No dithering. Colors are simply mapped to the closest available color in the selected palette.

Floyd-Steinberg The most popular <u>error diffusion</u> dithering method. Fairly quick with reasonable results.

Burkes Another error diffusion dither. Takes slightly longer than Floyd-Steinberg, and sometimes produces nicer results.

Stucki A fairly complex error diffusion dither. Slower than Floyd-Steinberg or Burkes, but usually the nicest results, especially for truecolor to 256-color conversions.

Quick Uses the ThumbsCD palette to very quickly dither an image to 256 colors. With truecolor images on a 256-color display, this option will produce the same results as displayed in the window.

ThumbsCD retains the last selections you made in this window so you can apply the identical changes to subsequent files, or during <u>batch processing</u>.

Image - Color Adjust

Use this selection to alter the brightness, contrast, gamma and red, green and blue levels in an image.
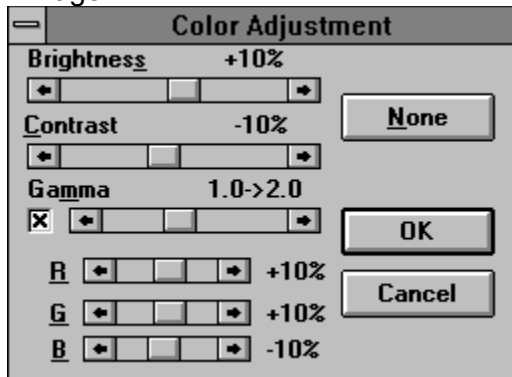
Brightness

This control changes the overall brightness of an image. Use negative values to darken an image, and positive values to lighten it. Use the arrow keys or the mouse to change the value.

Contrast

This control changes the contrast; that is, the difference between the light and dark areas. Positive values increase the difference between them, while negative values decrease the contrast.

Gamma

This control changes the color values or gray levels in an image to provide for a specific gamma correction. The display itself doesn't change (because ThumbsCD knows the new assumed gamma value, and adjusts for it!), but the image itself does. This is most useful if you have linear files (gamma = 1.0), and wish to make them "standard" GIF files (gamma = 2.0), so they will display reasonably correctly with viewers which don't provide gamma correction.

R, G, B

These controls modify the amount of Red, Green and Blue in the image. They work similarly to the Brightness control, but individually on each color channel.

None

Sets all controls to zero.

View

On Truecolor or Highcolor displays, this button repaints the image with the selected changes. This button is absent on 256-color displays, as ThumbsCD automatically animates palette of the image to show the changes.

Note that ThumbsCD "remembers" the last values you used to adjust an image, so you can use them to adjust another, or as input to Batch processing of images.

Image - Convert to Bitmap   F5

This option converts a metafile to a bitmap. If the metafile contains aspect ration information, the resultant bitmap conforms to that aspect ratio (even if the current window shape is different). Note that you can only select portions of bitmaps, so you must use this selection if you want to select part of a metafile.

Image	View	Help	ThumbsUp!

Color Adjust...	C
Color Depth...	D
Rotate/Resize...	R
Flip Horizontal	H
Flip Vertical	V
Swap Red & Blue	W
Invert	I
Count Unique colors	U
Convert to Bitmap	F3

Click on any selection above.

View	Help	ThumbsUp!

<u>F</u>ull Screen	F3
Assumed <u>G</u>amma...	G
<u>Z</u>oom In	Z
Zoom O<u>u</u>t	Shift+Z
Z<u>o</u>om to Fit	F6
√ <u>M</u>aintain Aspect Ratio	Shift+F6
<u>A</u>utosize Window	Ctrl+F6
<u>C</u>omments...	F7
<u>O</u>ptions...	Ctrl+O

Click on any selection above.

ThumbsCD

This "quickie" menu, which has no drop-down items associated with it, simply brings the ThumbsCD main window to the top of all windows. It is useful when a large view window obscures or covers the ThumbsCD main window.

View Window

The View Window provides a simple way to view graphics images from within ThumbsCD. It also allows you to <u>crop</u> images, either manually or automatically; to create a <u>thumbnail</u> from a portion of an image; to convert a <u>metafile</u> (vector) image to raster (<u>bitmap</u>) format; and to save the modified image. The View Window provides the following menu:

| <u>F</u>ile | <u>E</u>dit | <u>I</u>mage | <u>V</u>iew | <u>H</u>elp | <u>T</u>humbsCD! |

🖑 *Click on any selection above.*

Glossary

Aspect Ratio

Bitmap

CD-ROM

Color quantization

Crop

Desktop

Dither

Drag-and-Drop

Gamma

Graphics Filter

Metafile

OLE

Palette

Path

Pixel

Profile

Purge

Raster image: see bitmap

Thumbnail

Token

Vector image: see metafile

Wallpaper

Drag and Drop

Drag-and-drop is the process of moving files by pointing with the mouse, clicking the left mouse button, and "dragging" to the desired location. In ThumbsCD, you can use this method to move or copy graphics files.

Aspect Ratio

The relation between the height and width of an image. For example, a square has an aspect ration of 1-to-1 (the height is the same as the width).

Pixel

A pixel is a dot in a raster image, or bitmap. Depending on the color resolution, a pixel takes from 1 to 24 bits to represent in memory and on disk. Therefore, an uncompressed bitmap which is 100 pixels wide by 100 pixels high can require from 10,000 to 240,000 bits (1250 to 30,000 bytes).

Metafile (vector image)

A metafile is a stored sequence of drawing commands which the computer can repeat to generate an image. Metafiles can contain simple drawing commands (such as *line*, *rectangle*, *circle*, *arc*, *polygon*); they may also contain commands to set colors, fill areas, display text, and even include <u>bitmaps</u>. Thus, metafiles are much more flexible than bitmaps, but they are more difficult for programmers to support and slower to display.

Bitmap (raster image)

A bitmap (raster image) is a graphics image composed of small dots (pixels). These dots can be simple on-or-off bits (a monochrome bitmap), or represent colors. Windows supports four levels of raster images: monochrome (1 bit per pixel), 16-color (4 bits per pixel), 256-color (8 bits per color), or 16 million color (24 bits per pixel). Raster images do not generally scale to larger sizes very well; the dots become squares or rectangles and the image appears grainy. Also, raster images use lots of disk space and memory. However, they display faster than metafile (vector) images and can show much more true-to-life detail. Scanned images, such as Compuserve GIF files, are raster images.

Crop

Cropping an image involves selecting an area and removing the rest. ThumbsCD can crop manually (where you select the crop area) from the View Window; ThumbsCD can also crop automatically, removing unnecessary space from around an image. You can control when ThumbsCD does this automatic cropping from the General Options dialog box.

Color Quantization

Color quantization is the process of finding the best set of colors for representing an image. Two methods are provided in ThumbsCD - median cut, which does a very good job for real-world (scanned or photographed images), and popularity, which does well for drawn images.

The popularity method simply picks the n colors used the most in the image; this tends to leave out colors for highlights in photographs, which are important even though not the most popular.

The median cut method assigns all available colors to boxes, then splits the boxes to determine a representative set of colors.

Gamma

Generally, gamma correction is a process to make pictures appear more accurately on a specific monitor. Differences in color value do not exactly map to changes in brightness on the screen; the gamma value defines a curve which specifies the way a monitor displays specific color values. The Monitor Gamma dialog box helps you find the appropriate gamma value for your monitor.

The other piece of the equation is figuring out the corrected gamma value to which an individual picture was adjusted. The Compuserve GIF definition specifies that GIFs should be adjusted for a gamma value of 2.0 -- you can set the "assumed gamma" for any picture, or set the default for any file type.

Generally, if pictures appear dark and have little detail in the shadow regions, they're probably linear (gamma = 1.0). Try setting your monitor gamma to an appropriate value, and the assumed gamma to 1.0.

Note: If either the assumed gamma or the monitor gamma is zero, ThumbsCD will not gamma correct the image for display.

Desktop

The window that acts as the background for all windows in Windows 3.1. Other windowing systems generally call this the root window. Icons appear at the bottom of the desktop window.

Palette

A color palette is much like an artist's palette -- it's the selected color values that are used to represent an image. 24-bit images don't have a palette; each pixel includes the color information in it. When reducing a 24-bit image to an 8-bit or 4-bit image, you'll need to select an appropriate color palette, or have ThumbsCD compute an optimized palette for you, using color quantization.

Wallpaper

A   Windows bitmap displayed in the background (the <u>desktop</u>). This image may be tiled (repeated to fill the screen) or centered.

Graphics Filter

A program or library (DLL) which can convert graphics from one format to another. Microsoft provides several filters with Word for Windows and other products. ThumbsCD can use these filters to import graphics files.

Token

A sequence of letters or symbols which represent something else. For example, '%F' is a token which represents a file name in the editor command string invoked by ThumbsCD.

Dither

Dithering is a process which allows many colors to be represented by a few. For example, the standard Windows VGA driver only has 16 colors, and combines these in simple patterns (*ordered dither*) to represent many more. An ordered dither is acceptable when viewed from a distance, but often causes images to appear grainy and cluttered. Better dithering methods, called *error diffusion*, provide a better appearance, especially for real-world images. One key to a successful dither is providing enough and appropriate colors to work with (color quantization).

ThumbsCD provides several error diffusion dithers for use when reducing the number of colors in an image: Floyd-Steinberg, Burkes and Stucki; and a single ordered dither (ThumbsCD Quick), which is used to quickly dither 24-bit images for an 8-bit display.

Profile (.INI file)

Lists configuration options and selections for a program. The Windows profile is called WIN.INI; the profile for ThumbsCD is THUMBS.INI. Profile files are generally stored in the Windows directory to be unique for each user in a network environment.

OLE (Object Linking and Embedding)

Object linking and embedding is a method used in Microsoft Windows to connect documents of one type to another. For example, a Paintbrush picture (BMP) may be embedded in a Word document, or a Corel drawing may be linked into a Write file. ThumbsCD can sometimes use OLE to create thumbnails of file types which aren't directly supported; see the File Type Configuration dialog box for more information.

Path

The DOS Environment variable which specifies where DOS and Windows look for executable files when no explicit drive or directory information is given. It is usually set in the **AUTOEXEC.BAT** file, which runs when DOS starts up.

CD-ROM

A CD (compact disk) used to store data. ROM stands for "Read-Only Memory." You cannot write to a CD-ROM disk.

Selecting Files

You select files from the **file list** (the area of the screen with <u>thumbnails</u>) by using the mouse or keyboard.

Using the Mouse to Select Files

You can use a mouse to select a file or group of files. Before you can select files, they must be visible in the **file list**.

To select a file:

Click the filename or thumbnail.

To select multiple items in sequence:
1. Click the first file you want to select.
2. Press the SHIFT key while you click the last file to select.

To select two or more file out of sequence:

Press and hold CTRL while you click on each file.

To cancel the selection of a file:

Press and hold CTRL while you click the selected file.

Using the Keyboard to Select Files

You can use the keyboard to select a file or group of files. Before you can select files, they must be visible in the file list.

To select a file:

Use the following keys to select a file or directory.

Press	To select
UP or DOWN ARROW	A file above or below the current selection.
END	The last file in the list.
HOME	The first file in the list.
PAGE UP	The file at the top of the previous screen.
PAGE DOWN	The file at the bottom of the next screen.

To select two or more items in sequence:

1. Use the arrow keys to move to the first file you want to select.
2. Press and hold down SHIFT while you select the remaining files.

To select two or more items out of sequence:

1. Use the arrow keys to move to the first file you want to select.
2. Press and release SHIFT+F8. The selection cursor begins to blink.
3. Move to the next file you want to select.
4. Press the SPACEBAR to select each file.
5. Press SHIFT+F8 when you finish selecting files.

To cancel the selection of a file:

1. Press and release SHIFT+F8 so that the selection cursor begins to blink.
2. Move to the selection you want to cancel, and then press the SPACEBAR.
3. Press SHIFT+F8 when you finish canceling selections.

Purge

To eliminate unneeded, unused or deleted space.

Thumbnail

A small representation of an image, used as an aid in indexing or cataloging graphics images.

Hints and Tips

File Manager Drag & Drop. ThumbsCD will act as a drag-and-drop client from File Manager. Simply drag file names from File Manager to the ThumbsCD window (or icon). ThumbsCD will open a view window for each file (up to the maximum number of view windows specified in the Viewer Options). You can also drag files *from* ThumbsCD to other applications.

View Window Shortcuts. Double-clicking with the left mouse button in a view window will change it to full screen mode. Double-clicking with the right mouse button in a view window will close the window.

Metafile Viewing. If you're displaying true-color (24-bits) or standard VGA, turn on "Dither Metafiles" from the Viewer Options dialog box. In the case of true-color, Windows never dithers; in the case of standard VGA, the special code to create solid colors for the dithered colors cannot work.

Background Colors. For full-screen displays of 256-color images on a palette-based (256-color) display, select either black or white as the background color from the Viewer Options or the Slide Show Options dialog box, as ThumbsCD steals the other system colors to more accurately display the image.

Internal Drag & Drop. Although ThumbsCD has only a single window, you can drag files to directories not visible on the directory list by scrolling it **after** selecting the files you want to move or copy.

Performance. Though there is no built-in limitation on the number of file ThumbsCD can handle, I recommend creating multiple catalogs (databases) if you have more than about 5000 files. Besides reducing the memory required to handle the index, smaller catalogs will speed up access to thumbnails in the database.

Restrictions

TrueType Fonts. ThumbsCD cannot yet process TrueType fonts in Macintosh format. These fonts work fine in Windows, but ThumbsCD does not recognize them. This will be fixed in a subsequent release.

Unlabeled Disks. If you view offline volumes (Tree - Show Offline Volumes), it may be confusing to try to handle unlabeled diskettes.

CGA-format PCX files. ThumbsCD does not currently handle 4-color (two plane) PCX files.

Non-standard JPEG files. ThumbsCD uses version 4 JPEG code to handle JFIF files and may not recognize files created with earlier releases. Also, some programs create proprietary (non-JFIF) format files also called ".JPG", which ThumbsCD does not recognize.

Thanks to...

Many thanks to everyone involved in the development and testing of ThumbsCD. I would like to offer special recognition to:

David Hanna, for excellent suggestions and great insight into what ThumbsCD should become (and I hope it has!).

Pat O'Sullivan, for the most thorough testing any developer could hope for from a single person.

Cricket, Adam, Rachel, Leah and Evan Crews, my wife and children, for putting up with me during the development of ThumbsCD.

Tom Lane and the Independent JPEG Group. Many thanks for routines that are well-written, easy to understand, straightforward to implement, and were simple to integrate into ThumbsCD.

Many thanks also to everyone who tested ThumbsCD

Windows Video Drivers

By default Microsoft Windows uses a fixed 16-color display driver (called the Standard VGA driver). This driver is fine for text-based or minimally graphic applications, but falls down heavily when confronted with multi-colored graphic files, like GIFs and JPEGs. Using a 16-color driver, graphics appear grainy, grayish and generally ugly, because Windows maps them to the 16 Windows colors.

Most systems purchased within the last few years have contained Super VGA video cards, which require special video drivers for Windows. Usually, a diskette with Windows drivers comes with the system. Occasionally, the drivers are pre-installed on the system and available to Windows. Also, if you've upgraded your video card, you should have received Windows drivers with it.

Installing the Drivers

To install the drivers, have your driver disk *and* your Microsoft Windows installation disks handy. Then, follow these steps:

1. From Program Manager, run Windows Setup.
2. Select *Change System Settings...* from the *Options* menu.
3. If your drivers have been pre-installed, scroll through the display list and find an appropriate driver. Select this driver, then click **OK**. You may have to restart Windows to make the change effective.
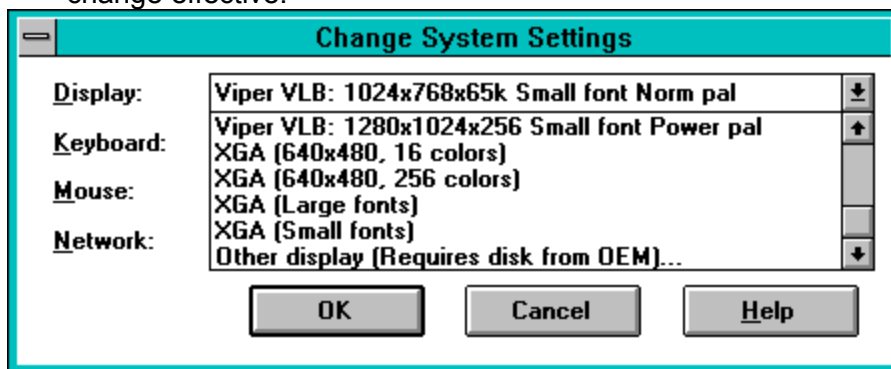
4. If you have to install the driver from a diskette, pick the entry labeled *Other display (Requires disk from OEM)...*
5. Insert your diskette when prompted; you may also have to insert one or more Windows installation disks.
6. Pick an appropriate driver and click **OK**.

If you have problems starting Windows after selecting a video driver, run Windows Setup from DOS to select the original (VGA) driver:

```
C:\> CD \WINDOWS
C:\WINDOWS> SETUP
```

Selecting a Driver

Several different color depths and screen resolutions may be available; here is some information on the possible choices:

Four different color depths are generally considered "Super VGA;" these are:

256-color (8 bits required per pixel)

This provides the minimum number of colors to display a single color graphic; multiple graphics must usually share some colors, so quality is sacrificed on all but the "top most" window. 24-bit graphics must be pre-processed before display to achieve reasonable color; ThumbsCD uses a fast "quick-dither" to the thumbnail palette. This is indicated by a [Q8] appended to the file name in the view window title bar.

32768-color (16 bits required per pixel)

This mode divdes the 16 bits into 5 red, 5 green and 5 blue pixels. One pixel is not used. This provides much better viewing capability than the 256-color mode, but requires more video memory. You can simultaneously view multiple 256-color graphic files. Truecolor (24-bit) files will suffer some loss in quality (because nine bits of each pixel are ignored), and may be somewhat slower to display because the video driver has to "map" the colors.

65536-color (16 bits required per pixel)

This mode provides similar capability to the 32768-color mode, with (very) slightly better results. The extra (16th) bit is usually used for green.

16-million color (24 bits required per pixel)

Eight bits are used for each color (red, green, blue). This provides true color viewing -- no color information is lost from 24-bit images, and as many as desired may be viewed simultaneously. This is the most accurate color mode, but generally slower than 256-color mode.

Your video card may be capable of several different color depths and several different resolutions. Here is a table showing the minimum amount of video memory required for most popular color resolutions for each color depth, rounded up to 512Kb (Kilobytes) increments. Note that video memory is separate from system memory -- it's on the video card itself, and not usuable for programs or data.

	256 (8-bit)	32768/65536 (Hicolor)	16.7 Million (Truecolor)
640x480	512Kb	1Mb	1.5Mb
800x600	512Kb	1Mb	2Mb
1024x768	1Mb	2Mb	2.5Mb
1280x1024	1.5Mb	3Mb	4Mb
1600x1200	2Mb	4Mb	6Mb

Video cards with less than 512K of memory are not capable of running Windows with more than 16 colors.

Your monitor must also be capable of displaying the required vertical and horizontal resolution.

Using higher color depths also requires more system memory, as bitmaps are often stored in system memory at the color depth (bits per pixel) required for the current display.

Supported File Types

The list below shows the file types that ThumbsCD supports. If there is additional information available, the file type is underlined.

.BMP,.DIB,.RLE	Windows Bitmap files
.CDR,.PAT,.BMF	CorelDRAW, CorelGALLERY
.CGM	Computer Graphics Metafile (binary encoding)
.EPS	Encapsulated Postscript files (preview image only)
.GEM	GEM Metafiles
.GIF	CompuServe Graphics Interchange Format files
.ICO	Windows Icon files
.IFF,.LBM	Amiga IFF format
.IMG	GEM Image format
.JPG,.JFI,.JIF	JPEG compressed files (in JFIF format)
.MND,.MNI	Mandelbrot for Windows image files
.PCX,.PCC	ZSoft Picture files
.PCD	Kodak PhotoCD files
.RAS,.SUN	Sun Raster format
.RAW	Raw grayscale images
.TGA,.WIN	Targa Truevision™ files
.TIF	Tagged Image Format files
.TTF,.TTR	TrueType fonts
.WMF,.MF	Windows Metafiles and Placeable Metafiles
.WPG	DrawPerfect graphics files

BMP, DIB, RLE: Windows Bitmaps

This is the standard <u>bitmap</u> format supported by Microsoft Windows. ThumbsCD supports all color depths (1, 4, 8 or 24 bit), and the compressed (RLE) formats for 4-bit (RLE4) and 8-bit (RLE8) bitmaps.

The standard VGA driver does not properly decompress 8-bit compressed BMP files; for best color viewing (and nicest thumbnails), you should load a 256-color or higher <u>Windows video driver</u>, which should eliminate this problem.

Some proprietary 8-bit drivers do not properly decompress 4-bit compressed files, though the situation is always improving, and this problem is becoming much less common.

ThumbsCD currently writes only uncompressed BMP files.

GIF: CompuServe GIF

The GIF format was developed by CompuServe, an on-line service, to provide good file compression and relatively fast decompression speed. GIF is a very popular format for online services, but is limited to a maximum of 256 colors.

Two standards have been developed: 87a and 89a. ThumbsCD fully supports the 87a standard, and will view comments from 89a files. Multiple-image, multimedia, text, and input extensions are not supported.

ThumbsCD can read interlaced GIF files, but always saves in non-interlaced format.

PCX, PCC: ZSoft Picture

PCX and PCC files are a fairly early PC graphic format, which has been extended over the years to support more and varied color depths.

The only known PCX format not supported by ThumbsCD is 2-plane CGM files (4 color). These files may be supported in the future if there is sufficient interest.

ThumbsCD does support 24-bit (3-planes x 8-bits per pixel) PCX files.

PCX files may or may not be compressed; ThumbsCD always writes version 5, compressed PCX files, in the color depth of the current image.

TGA, WIN: Targa Truevision™

ThumbsCD supports 8-bit, 16-bit and 24-bit Targa files. The more recent Targa extensions (including the "Developer Area") are not yet supported, but planned for a subsequent release.

The alpha channel information not currently retained.

ThumbsCD saves TGA files at the appropriate color depth for the graphic; 4-bit (16-color) files are promoted to 8-bit Targa files.

ICO: Windows Icons

ThumbsCD supports Microsoft Windows icon files, which are associated with applications for display in Program Manager or alternate shell programs.

256-color icons are handled, but not well tested because of a general lack of availablity of 256-color icons.

JPG, JIF, JFI: JPEG (JFIF) Files

The JPEG format was developed to provide a high degree of compression for images. It is a "lossy" compression method, meaning that some color information from the original is lost. When saving JPEG files, ThumbsCD allows you to specify the intended quality of the image.

JPEG is generally appropriate for photographed or scanned images, and works best for 24-bit sources. JPEG is generally inappropriate for any type of line-drawn art.

The JFIF specification describes a standard way to incorporate JPEG images in disk files; only JFIF images are supported by ThumbsCD. Some software (notably GIF2JPG, by Handmade Software), writes non-JFIF files which ThumbsCD cannot handle.

ThumbsCD incorporates the Independent JPEG Group's source code (V4), and supports only baseline JPEG images.

Lossless JPEG is not currently supported. For lossless storage of 24-bit images, use Targa, BMP, or PCX.

ThumbsCD allows several loading options for JPEG files. When using a 256-color display, the JPEG file may be reduced to 256 colors during loading. This is not recommended if the image is going to be edited. See JPEG Load Options.

For more information on saving in the JFIF format, see JPEG Save Options.

TTF, TTR: TrueType fonts

ThumbsCD can thumbnail, install, and remove TrueType fonts.

The default format of the thumbnail is to show the font name in the font itself. The text in the thumbnail may be changed. To change the sample text used to thumbnail fonts, you must edit the .TUO file associated with the database. The format for the entry is:

```
[Fonts]
SampleText=this is my text+
```

If the [Fonts] section already exists, add the "SampleText" entry to it; otherwise, type in both lines.

The '+' at the end tells ThumbsCD to append the name of the font to the sample text, so that both are placed in the thumbnail.

When installing and removing fonts, ThumbsCD updates the WIN.INI file to reflected the added or deleted fonts. ThumbsCD never deletes TTF files from the disk (unless, of course, you use File-Delete.

MND, MNI: Mandelbrot for Windows images

Mandelbrot for Windows is another Cerious Software product, which generates Mandelbrot set fractals. The files generated by this program may be thumbnailed and viewed in ThumbsCD.

MNI files contain information about generating the image only, but may contain a preview bitmap. This preview can be extracted by ThumbsCD from these files.

CDR, PAT, BMF: CorelDRAW and CorelGALLERY

ThumbsCD can create thumbnails for CDR, PAT and BMF files; however, it can only extract the preview bitmap from them. There is no internal support for the proprietary Corel format. Only Version 3 and Version 4 files with preview bitmaps are supported internally.

If you have Corel, you can set up CDR and PAT files for external OLE support (using the File Type Configuration dialog box), which will allow you to create much nicer thumbnails for them. However, the price is high: Corel is a very slow OLE server, so it takes much longer to create the thumbnails.

Corel files may also be viewed as metafiles using the OLE support.

CorelGALLERY files (.BMF) can be viewed and thumbnailed via OLE also, as long as the program itself is installed. As with the CDR files, OLE is considerably slower than the internal bitmap support.

EPS: Encapsulated Postscript

EPS files are Postscript language files, created for Postscript printers. ThumbsCD can access only the preview image (which can be in either <u>TIFF</u> or <u>Windows Metafile</u> format).

Copying this format to the clipboard or otherwise saving or converting it only accesses this preview; the Postscript contents themselves are not accessed by ThumbsCD.

IMG: GEM Images

The IMG format was originally designed for the Atari computers, then migrated to PCs for several GEM-based products, including Ventura Publisher. IMG files may also be embedded in .GEM metafiles.

ThumbsCD supports reading of all known IMG types, but does not currently correct the aspect ratio for files with non-square pixels.

IFF, LBM: Amiga and Deluxe Paint

The IFF format is an Amiga image storage format. LBM was created for the Deluxe Paint package, and is essentially the same. ThumbsCD supports all known IFF and LBM formats except HAM and Dynamic HAM, which may be supported in the future.

TIF: Tagged Image File Format

The Tagged Image Format was developed by several companies, including Aldus, to be the be-all and end-all of image file formats. Because of its scope and extensibility, it is an extremely complex format which no single product can support completely.

TIFF is a clear example of the danger of design by committee.

The known TIFF formats not yet handled by ThumbsCD are:

Images in YCbCr (YUV) or proprietary color formats.

Multiple-image TIFFs (only the first image is accessed)

JPEG-in-TIFF (JTIF) (let's take two very complex file formats and cram them together. That should make things *better*.)

The following compression methods and special-interest formats are supported:

Tiled TIFFs

CCITT RLE, Group 3, and Group 4 Fax compresions

Packbits, Thunderscan and Next compresion

LZW compression

Motorola (MM) format

ThumbsCD writes uncompressed TIFFs, or compressed via CCITT Group 3 or 4 FAX, Packbits, or LZW.

CGM: Computer Graphics Metafile

CGM files are <u>vector</u> graphic files useful as clipart. They scale well, and have the distinction of being the ***only*** ANSI standard graphic format. There are many flavors of CGM files; ThumbsCD supports the most popular for PCs (binary encoding), with the following limitations:

Embedded cell arrays (bitmaps) are not supported.

New (version 3) extensions, such as Bezier curves, are not supported.

Font support is incomplete

Rotated (non-orthogonal) ellipses and elliptical arcs are not correctly rendered.

Hatches are rendered with the closest hatching format available from Windows.

RAW: Raw Grayscale

Raw grayscale images are 256-level grayscale images stored with no header information; the horizontal and vertical widths are inferred from the size of the file, based on entries in the THUMBS.INI file:

```
[Raw]
Sizes=1024x512*2,1024x1024
```

This example tells ThumbsCD that two sizes of Raw grayscale files should be recognized: 1024x512 (524288 byte) and 1024x1024 (1048576 byte). The '***2**' on the first entry tells ThumbsCD to replicate each input scan line, generating a 1024x1024 image. Some medical imaging systems generate grayscale files for which this transformation is appropriate.

PCD: Kodak PhotoCD Images

Kodak PhotoCD files are a proprietary format developed by Kodak for photographic image storage. They are generally located on CD-ROM only, due to their extremely large size. They may be loaded at various resolutions.

ThumbsCD can load at any of the following resolutions:

Base/64 (96x64)

Base/16 (192x128)

Base/4 (384x256)

Base (768x512)

Base*4 (1536x1024)

ThumbsCD can load as either Truecolor, 8-bit palettized or as grayscale files. Use the Photo CD Loading options dialog box to select the desired size and color depth for loading PhotoCD files.

WPG: Word Perfect Graphics

WPG files are a vector (metafile) format that WordPerfect Corporation developed for use with its word processing products. Like other formats, WPG has evolved over the years.

ThumbsCD supports the original WPG format for graphics; some charting and textual items aren't supported.

The newest (WPG2) format is not supported, as it has not yet been documented for developers by WPC.

WMF, MF: Windows Metafile

The Windows Metafile format is the standard Windows format for storing vector (metafile) information. It's quite powerful, as anything that can be drawn on the screen or printed on a printer can be stored in a metafile. It does, however, lack several rather rudimentary graphics primitives, such as Bezier curves and non-orthogonal ellipses.

ThumbsCD can read and write Windows metafiles; vector graphics are also passed to and from the clipboard in this format.

Also, using OLE to load or thumbnail proprietary formats most often uses Windows Metafiles as the format for transfer of the picture of the file.

GEM: GEM Metafile

GEM Metafiles are vector graphic files which include drawing commands for rendering pictures. They are similar to, but less complete than, <u>CGM</u> files. GEM files originated on the Amiga, and have gone through several enhancement periods.

ThumbsCD does not claim to support all GEM files at this time; fonts are not handled very well, and curve support is incomplete. However, the support is sufficient for most clip-art, the most common type of file stored in GEM format.

RAS: Sun Raster

Sun Raster files are a popular image format for SUN Unix systems. They can contain either color-mapped (256-color) or truecolor images.

Many packages write the colors reversed (Red for Blue, Blue for Red), without setting the appropriate flag in the header. You can use "Swap Red and Blue" from the Image menu of the view window to correct such files.